March 2019

Water Year 2018 Report for the Santa Clara and Llagas Subbasins

Valley Water

Santa Clara Valley Water District

Water Year 2018 Report for the Santa Clara and Llagas Subbasins

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Valley Water
Clean Water • Healthy Environment • Flood Protection

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Executive Summary

EXECUTIVE SUMMARY

The Santa Clara Valley Water District (Valley Water) is the Groundwater Sustainability Agency for the Santa Clara and Llagas subbasins (Basins 2-9.02 and 3-3.01, respectively) in Santa Clara County, which are sustainably managed due to the comprehensive activities described in Valley Water's 2016 Groundwater Management Plan (Plan).[1] This Water Year 2018 Report for the Santa Clara and Llagas Subbasins provides information on groundwater conditions and management as required by the Sustainable Groundwater Management Act (SGMA).[2]

The subbasins fully recovered to pre-drought conditions in Water Year (WY) 2017, and groundwater elevation and storage remained sustainable in WY 2018.[3] In WY 2018, total groundwater pumping was about 122,200 acre-feet (AF), providing 41 percent of the water used by county residents and businesses. Despite below-average rainfall, adequate surface water supplies were available to support a full managed recharge program with 118,700 AF of local and imported surface water. Treated water delivered by Valley Water (105,500 AF) and recycled water use (17,800 AF) also provided in-lieu recharge, and countywide water conservation programs reduced water demands by about 76,000 AF. This comprehensive recharge continues to support a balanced long-term water budget. In WY 2018, inflows exceeded outflows in the Santa Clara Subbasin, resulting in a net increase in storage of about 26,100 AF. In the Llagas Subbasin, groundwater storage decreased by 1,100 AF during the same period.

Valley Water continues to implement the comprehensive activities described in the Plan, and to address the Plan recommendations (as further described in Chapter 4):

- Maintain existing conjunctive water management programs and evaluate opportunities for enhancement or increased efficiency.
- Continue to aggressively protect groundwater quality through Valley Water programs and collaboration with land use agencies, regulatory agencies, and basin stakeholders.
- Continue to incorporate groundwater sustainability planning in Valley Water planning efforts.
- Maintain adequate monitoring programs and modeling tools.
- Continue and enhance groundwater management partnerships with water retailers and land use agencies.
- Evaluate the potential new authorities provided by SGMA.

Valley Water will continue to sustainably manage the Santa Clara and Llagas subbasins as a central part of our mission to provide Silicon Valley safe, clean water for a healthy life, environment, and economy. Implementation of the Plan helps ensure continued sustainability in accordance with SGMA, the Santa Clara Valley Water District Act, and Valley Water Board policy to "aggressively protect groundwater from the threat of contamination and maintain and develop groundwater to optimize reliability and to minimize land subsidence and salt water intrusion."

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[1] This Plan was submitted to the Department of Water Resources as an Alternative to a Groundwater Sustainability Plan. Per state requirements, an annual report must be submitted by April 1 of each year following Valley Water adoption of the Plan.
[2] Valley Water produces a comprehensive calendar-year based Annual Groundwater Report that provides detailed information on groundwater levels, storage, land subsidence and groundwater quality conditions. This report is available at: https://www.valleywater.org/groundwater.
[3] October 1, 2017 through September 30, 2018

CHAPTER 1 – INTRODUCTION

For 90 years, Valley Water has managed groundwater in Santa Clara County under the Santa Clara Valley Water District Act.[4] In December 2016, Valley Water submitted its Board-adopted 2016 Groundwater Management Plan (Plan)[5] to the Department of Water Resources (DWR) as an Alternative to a Groundwater Sustainability Plan under SGMA. Valley Water's comprehensive groundwater management programs and investments described in the Plan have resulted in sustainable groundwater conditions for many decades, and will ensure groundwater resources are sustainable into the future.

Under the California Code of Regulations Title 23, Division 2, Chapter 1.5, Subchapter 2, Article 7, §356.2, each agency shall submit an annual report to DWR by April 1 of each year following adoption of the Plan. This report for Water Year (WY) 2018 is the second annual report submitted to DWR. It covers the Santa Clara Subbasin (DWR Basin 2-9.02) and the Llagas Subbasin (Basin 3-3.01), which are managed in their entirety by Valley Water. Figure 1 shows the location of the two groundwater subbasins.

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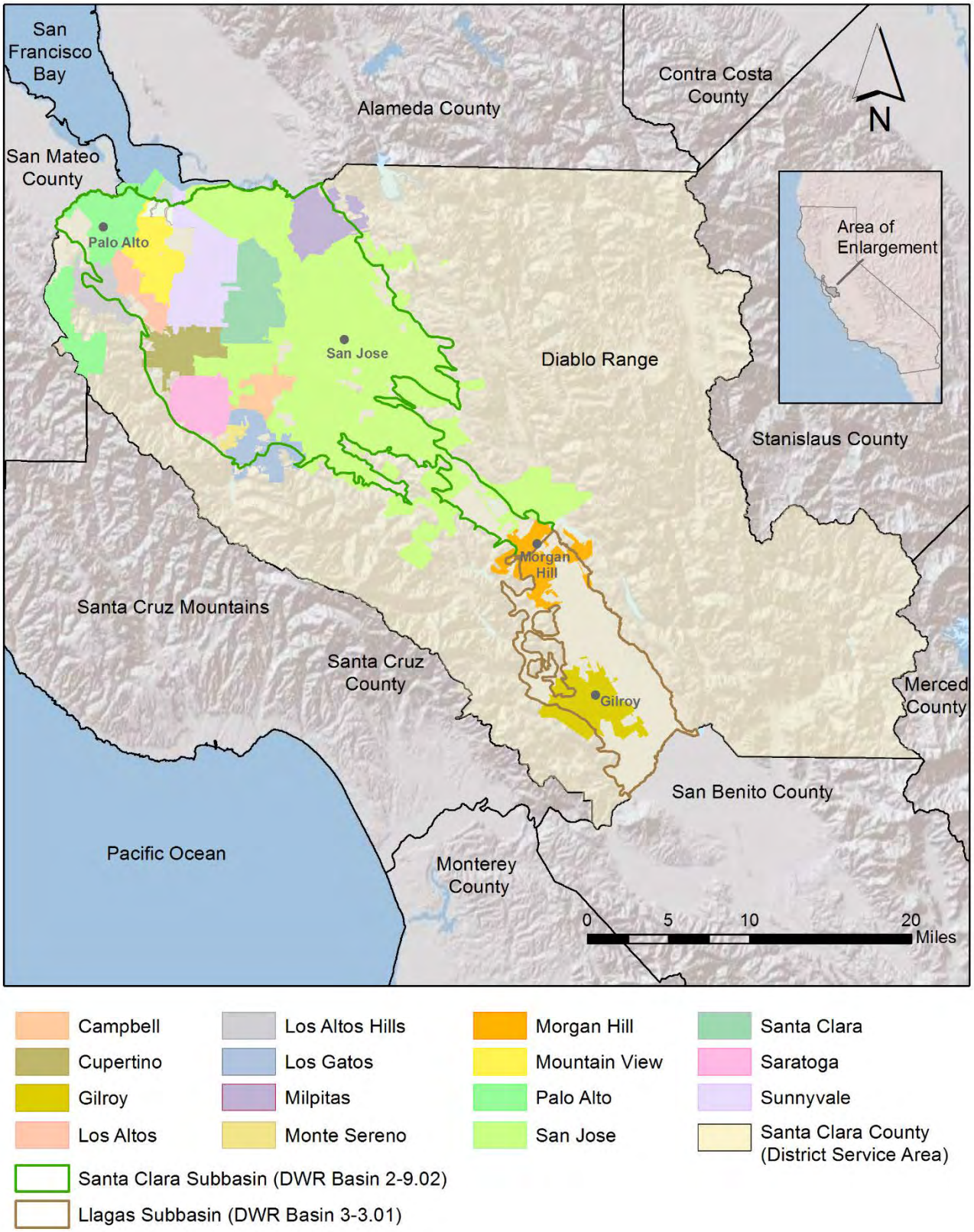
[4] Santa Clara Valley Water District Act, Water Code Appendix, Chapter 60.
[5] https://www.valleywater.org/your-water/where-your-water-comes-from/groundwater

Figure 1. Santa Clara and Llagas Subbasin Location Map



CHAPTER 2 – GROUNDWATER ELEVATION DATA

Valley Water tracks groundwater elevations, groundwater quality, and land subsidence through a countywide groundwater monitoring program. In WY 2018, Valley Water collected monthly groundwater elevation readings at 171 wells in the Santa Clara Subbasin and 58 wells in the Llagas Subbasin. Furthermore, local water retailers shared groundwater elevation data at 101 wells. While this report provides a summary of groundwater elevations based on 11 regional wells, all available countywide groundwater elevation data are accessible through the Valley Water website.[6] Valley Water also regularly uploads groundwater elevation data for Valley Water-owned wells to the California Statewide Groundwater Elevation Monitoring (CASGEM) program database.

Groundwater elevation contour maps for the Santa Clara and Llagas subbasins and related measurement locations are presented in Figures 2 and 3 for Spring 2018 and Fall 2018, respectively.[7] These contours represent the principal aquifer within each subbasin since those aquifers support the vast majority of pumping. Seasonal high groundwater conditions typically occur in March or April, with seasonal lows in September or October. The spring and fall maps were created using the water level readings measured closest to March 31, 2018 and September 30, 2018, respectively.

This report presents historical groundwater elevation data from 11 regional groundwater monitoring wells in the Santa Clara and Llagas subbasins (Figure 4); these monitoring wells are spatially distributed within the two subbasins and various cities in the county. Hydrographs for these wells show the static water level trend over the period of record, which varies by well (Figure 5).

Due to good water supply conditions, full managed recharge, and continued water use reduction by the community, groundwater elevations generally returned to pre-drought conditions in WY 2017. In fact, water levels in many wells approached or exceeded historical high levels. Groundwater levels remained sustainable in WY 2018 due to continued managed recharge and water use reduction, despite below-average precipitation. Groundwater elevations were far above the historical minima and levels seen during the last major droughts of 1987-1992 and 2012-2016, with strong artesian pressures observed in the northern Santa Clara Subbasin. Groundwater elevations were also well above Valley Water thresholds established to minimize the risk of land subsidence in the Santa Clara Subbasin.[8]

[6] https://gis.valleywater.org/GroundwaterElevations
[7] Groundwater elevations in this report use the North American Vertical Datum of 1988 (NAVD 88).
[8] As described in the Plan, land subsidence was a significant issue historically in the central and northern Santa Clara Subbasin. See Valley Water's Annual Groundwater Report for Calendar Year 2017 for a detailed discussion of recent subsidence monitoring: https://www.valleywater.org/groundwater. Note, the CY 2018 report will be available in summer 2019.

Figure 2. Spring 2018 Groundwater Elevation Contours

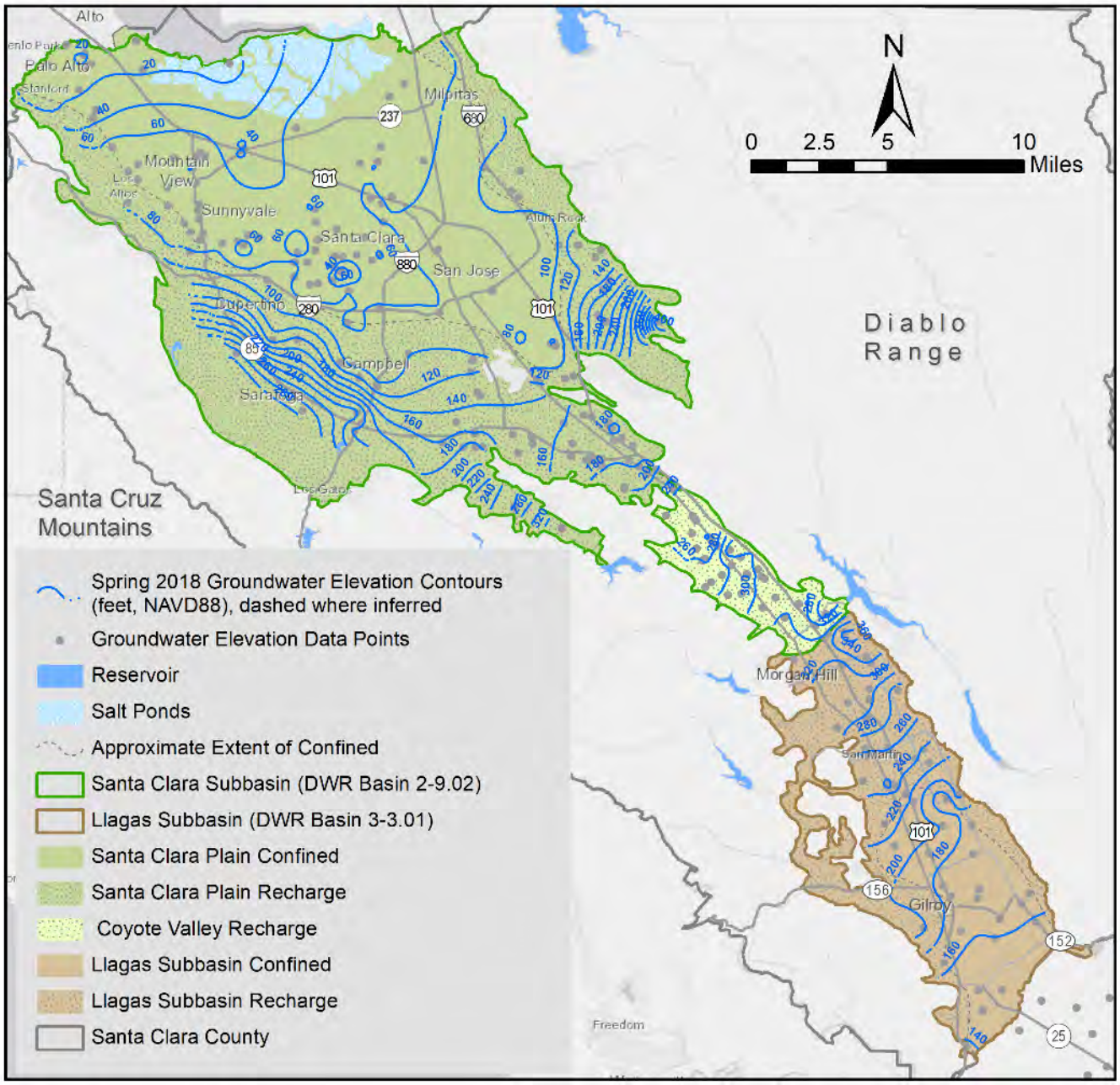


Figure 3. Fall 2018 Groundwater Elevation Contours

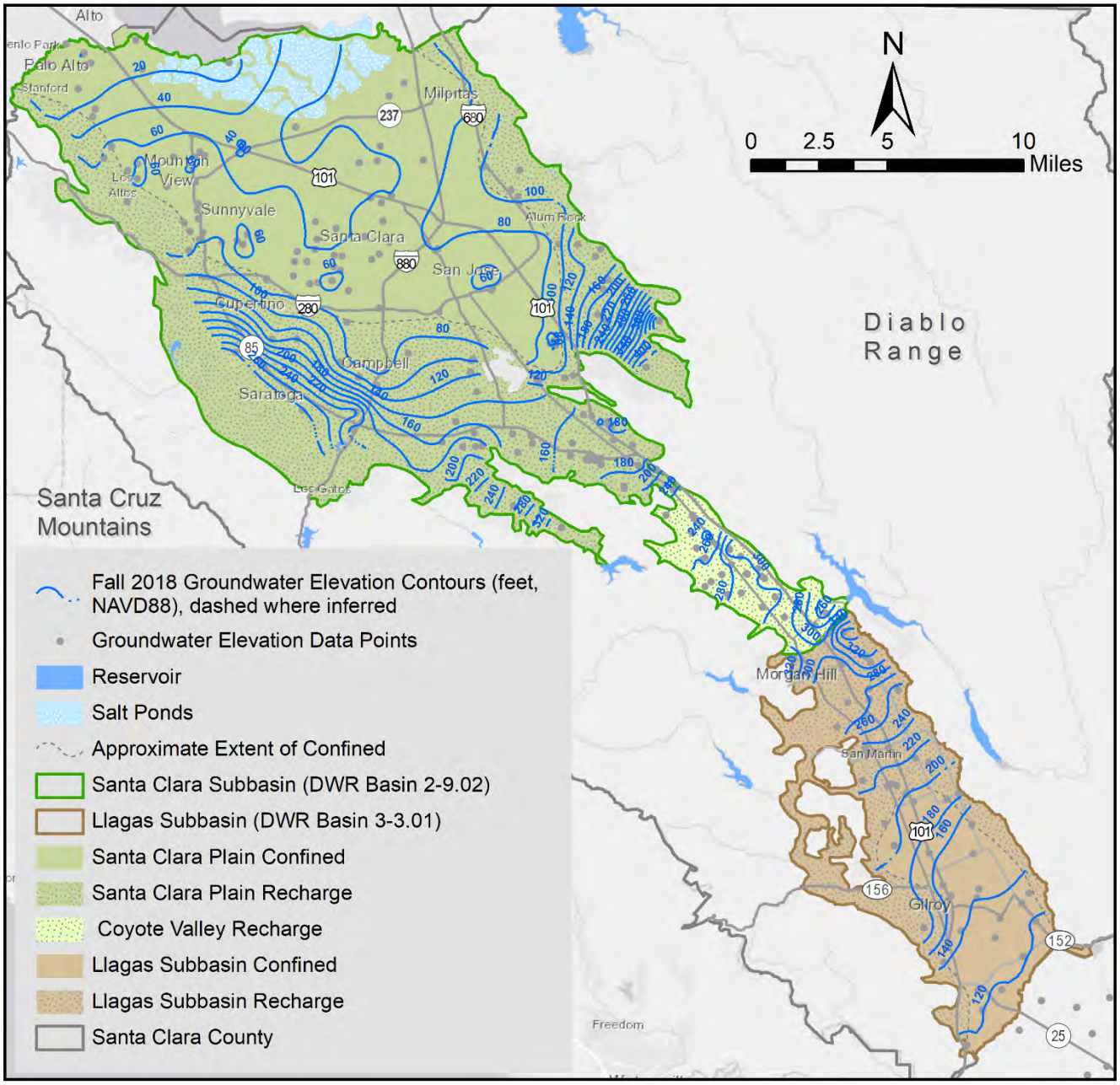


Figure 4. Regional Groundwater Elevation Monitoring Wells

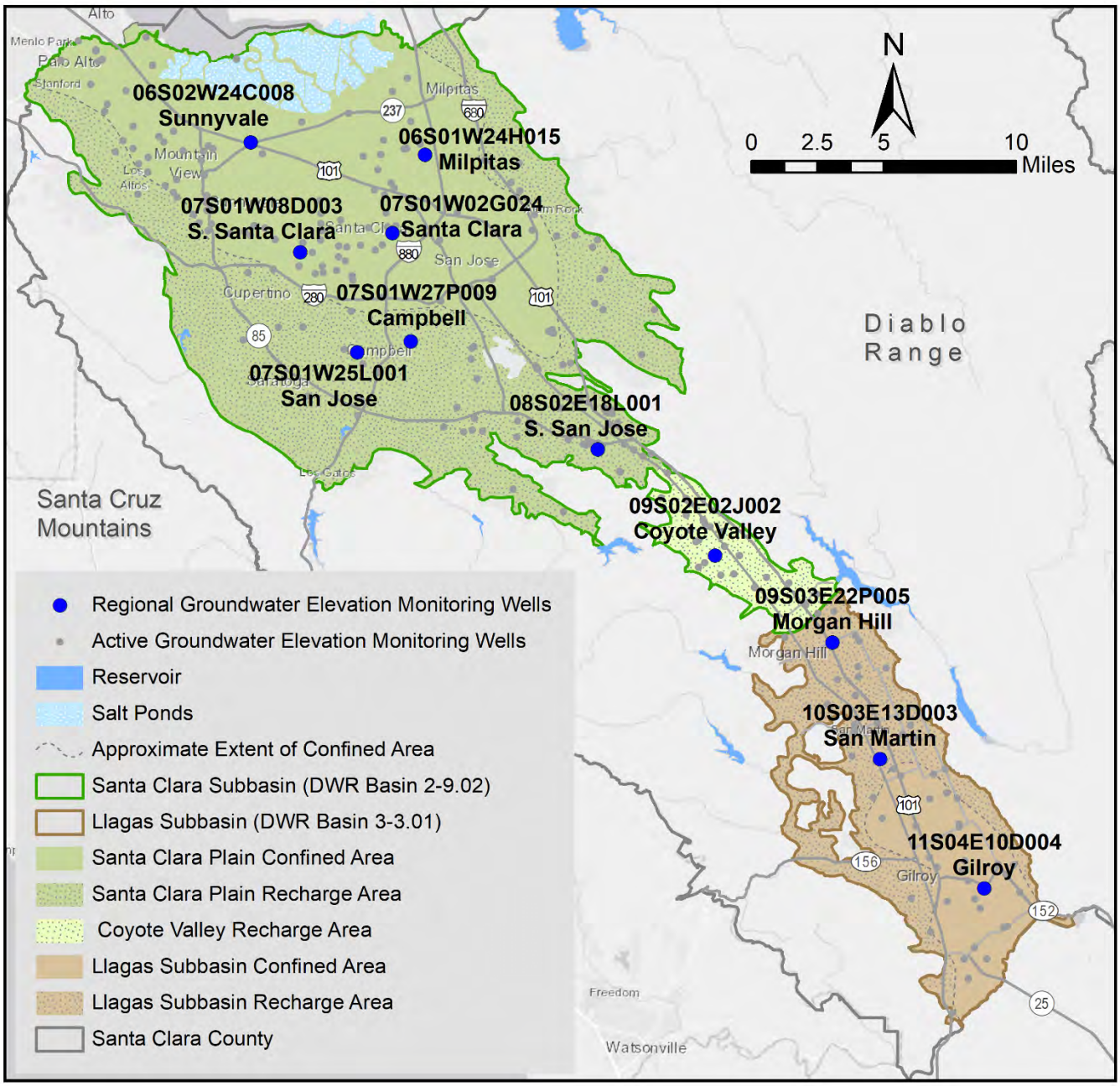
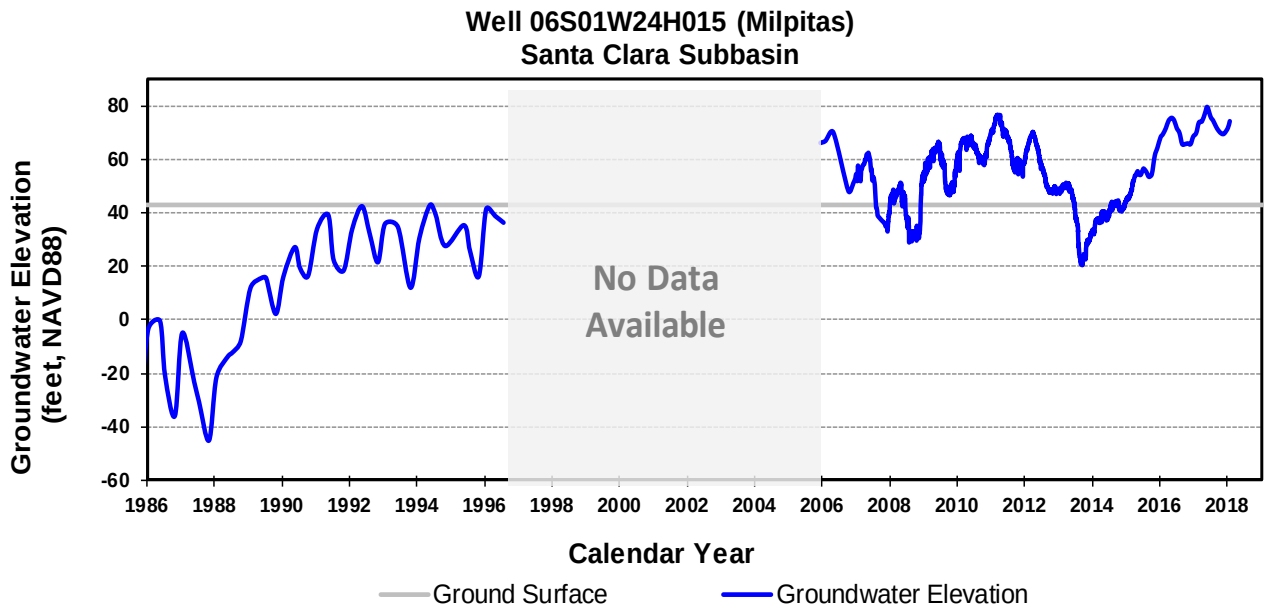
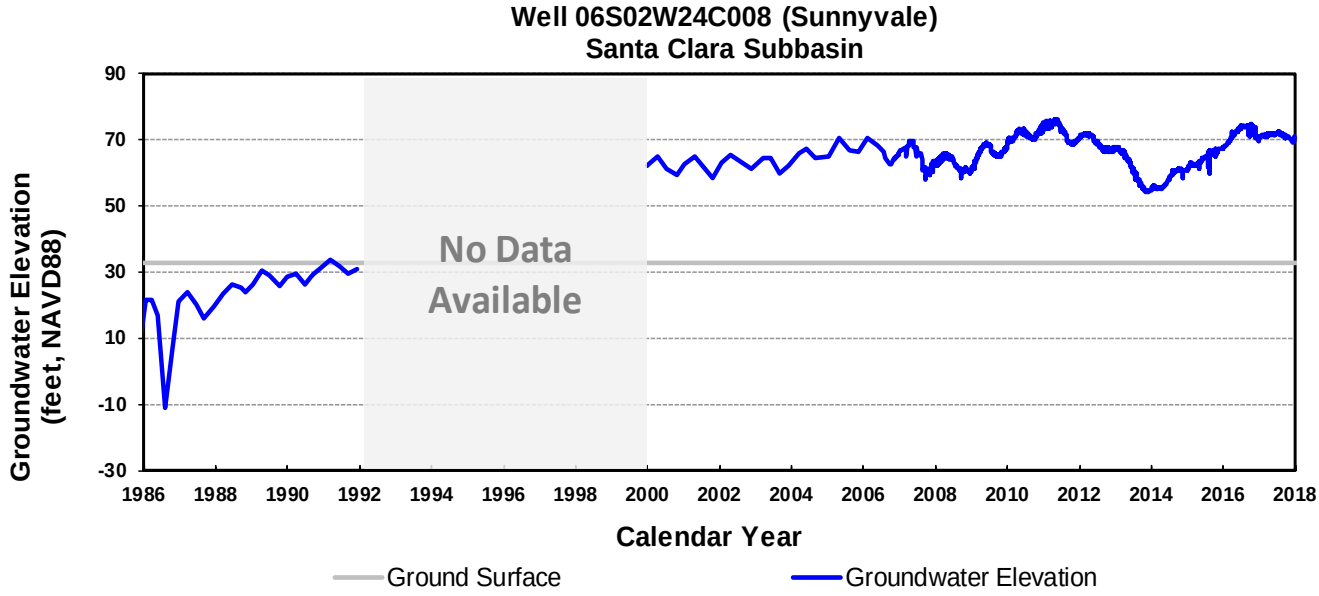


Figure 5. Hydrographs at Regional Groundwater Elevation Monitoring Wells

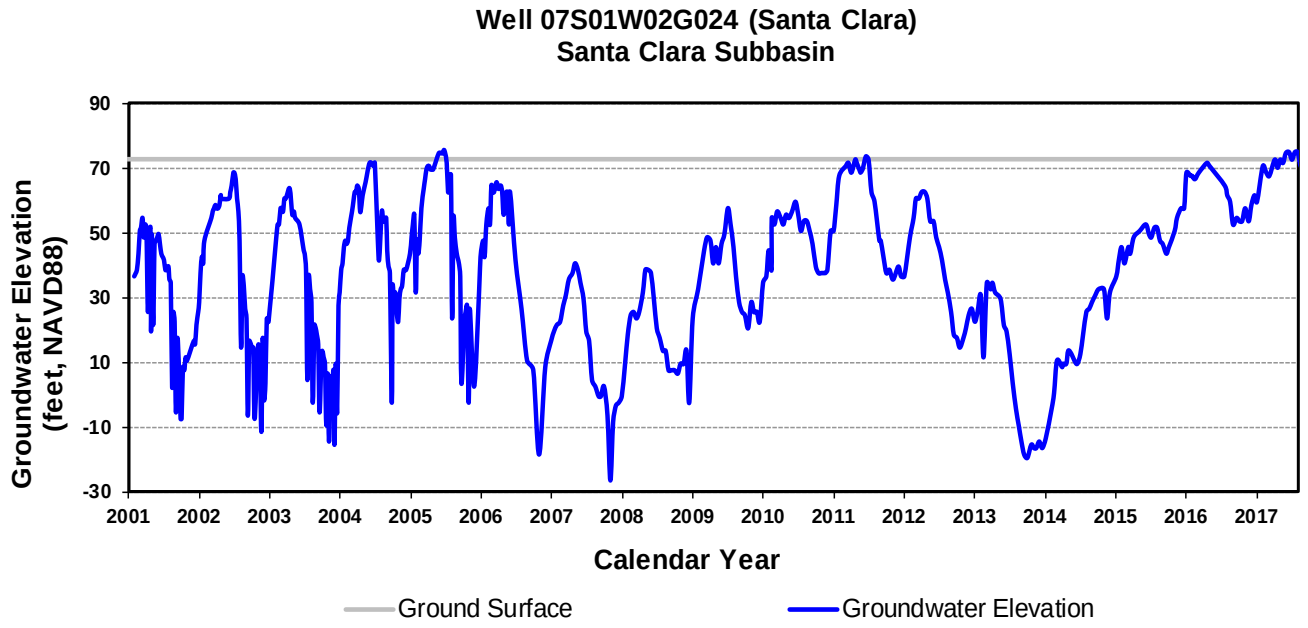


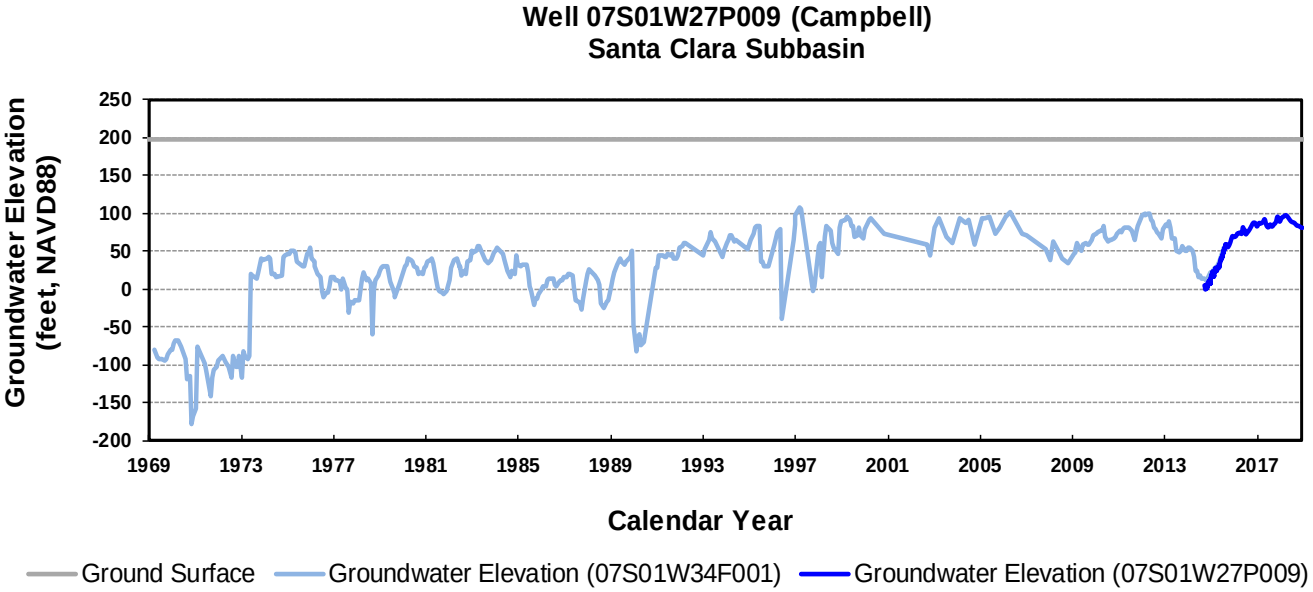
During period with no data available, well was observed to be artesian but there was no pressure gauge installed.



During period with no data available, well was observed to be artesian but there was no pressure gauge installed.

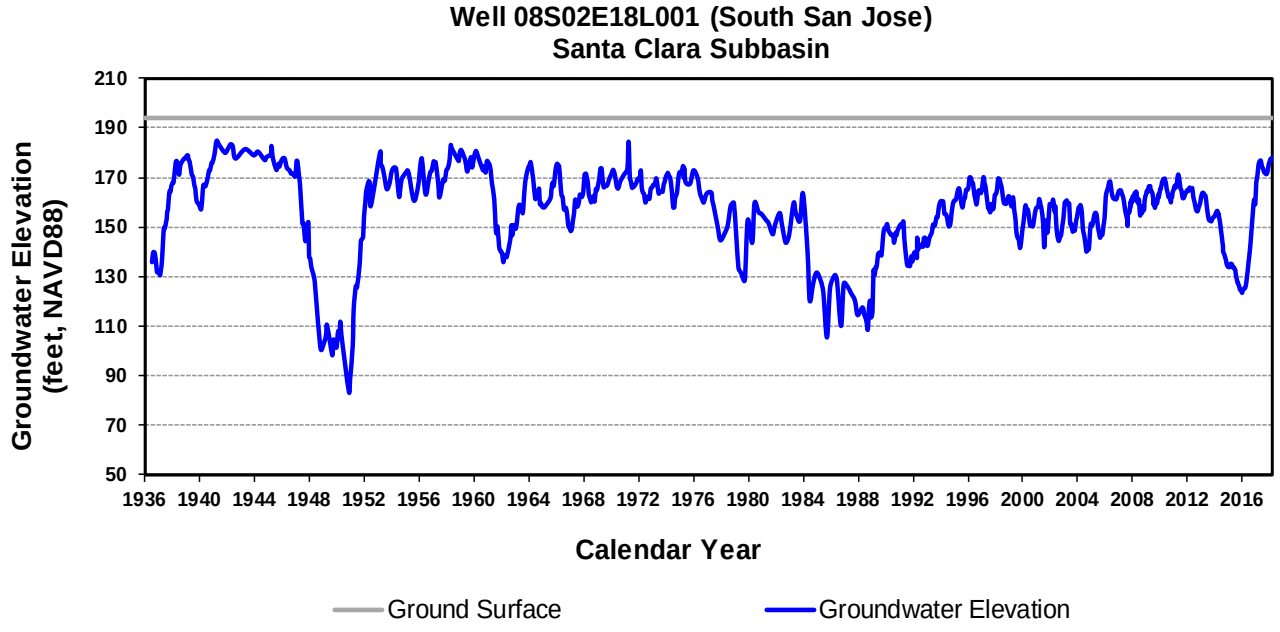
Figure 5. Hydrographs at Regional Groundwater Elevation Monitoring Wells (continued)





The Campbell well was replaced in August 2015 with a nearby well with similar water level history.

Figure 5. Hydrographs at Regional Groundwater Elevation Monitoring Wells (continued)



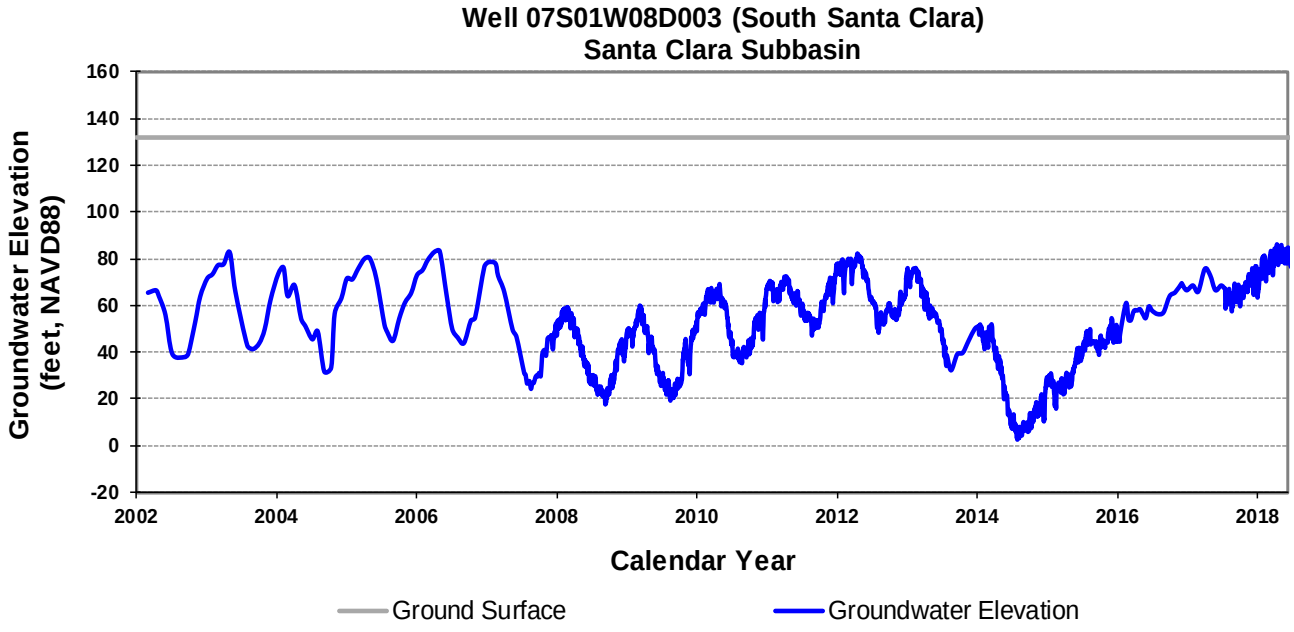
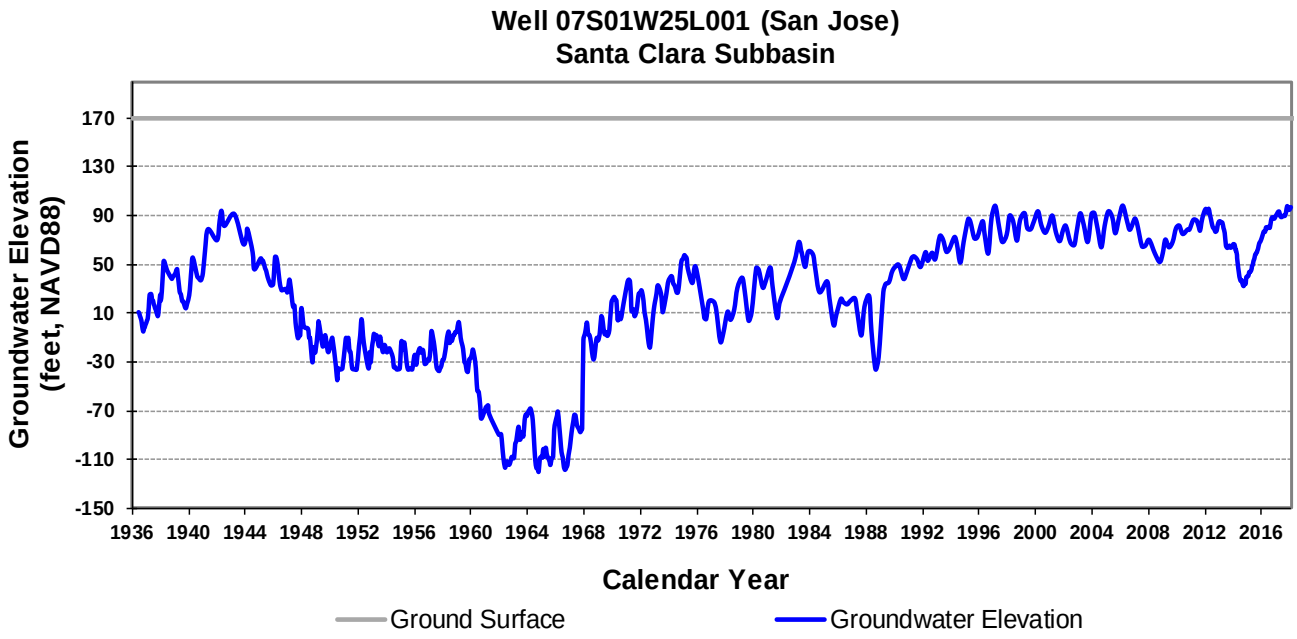


Figure 5. Hydrographs at Regional Groundwater Elevation Monitoring Wells (continued)



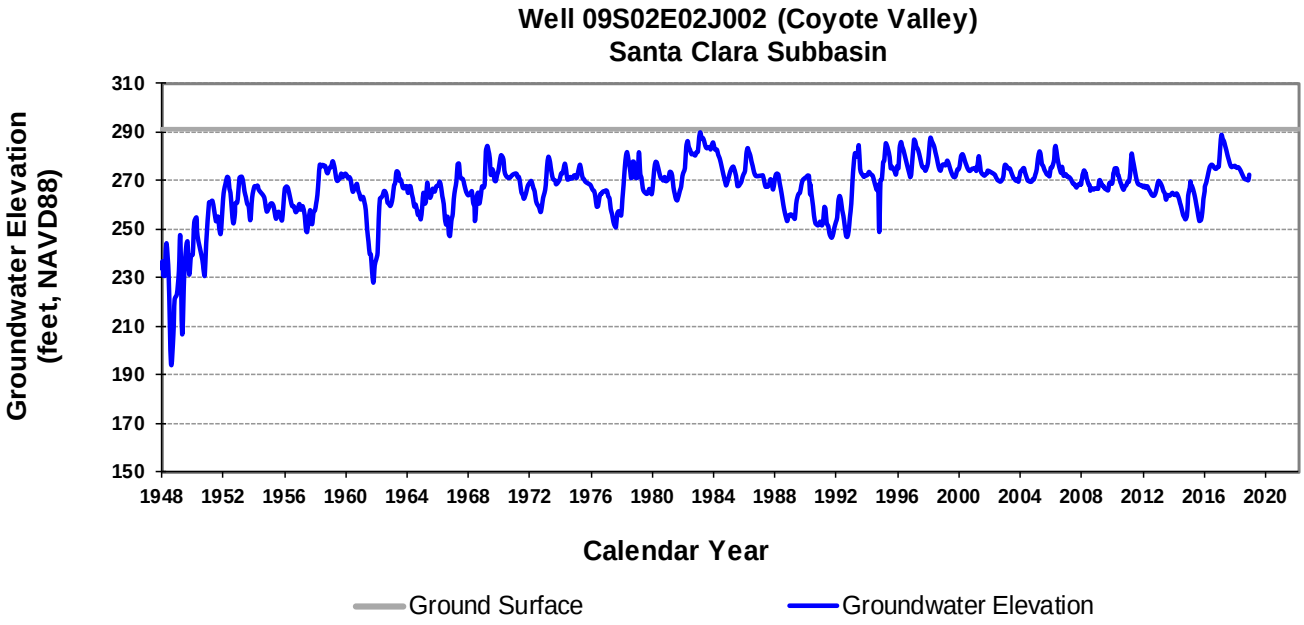
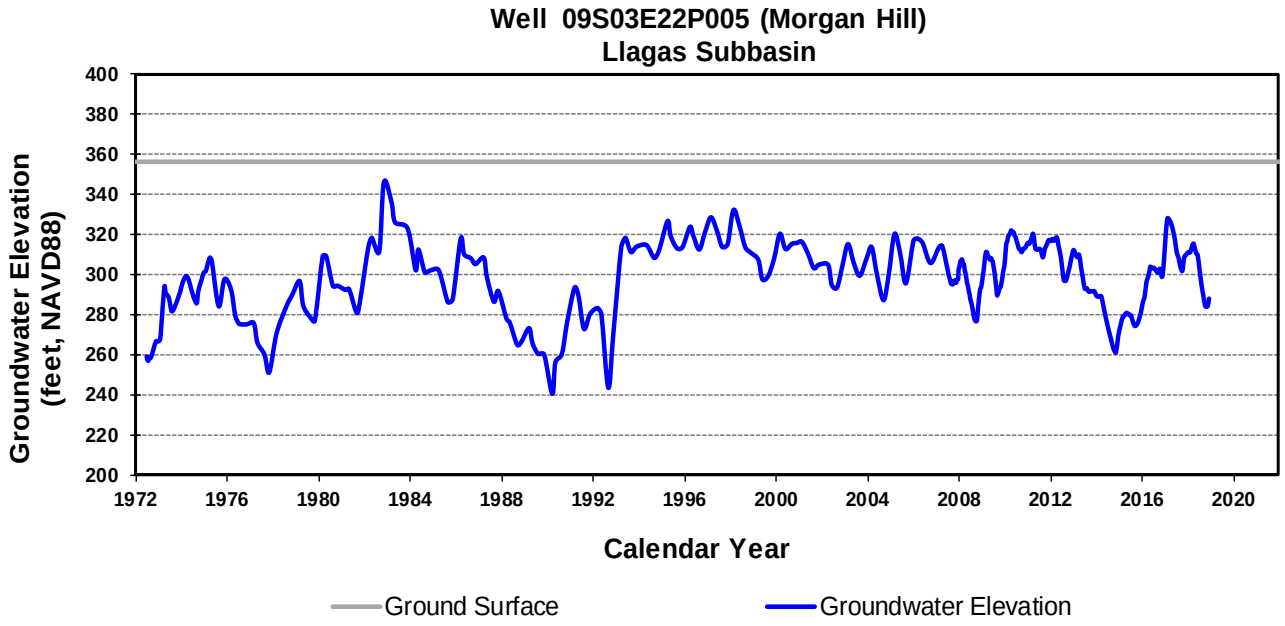


Figure 5. Hydrographs at Regional Groundwater Elevation Monitoring Wells (continued)



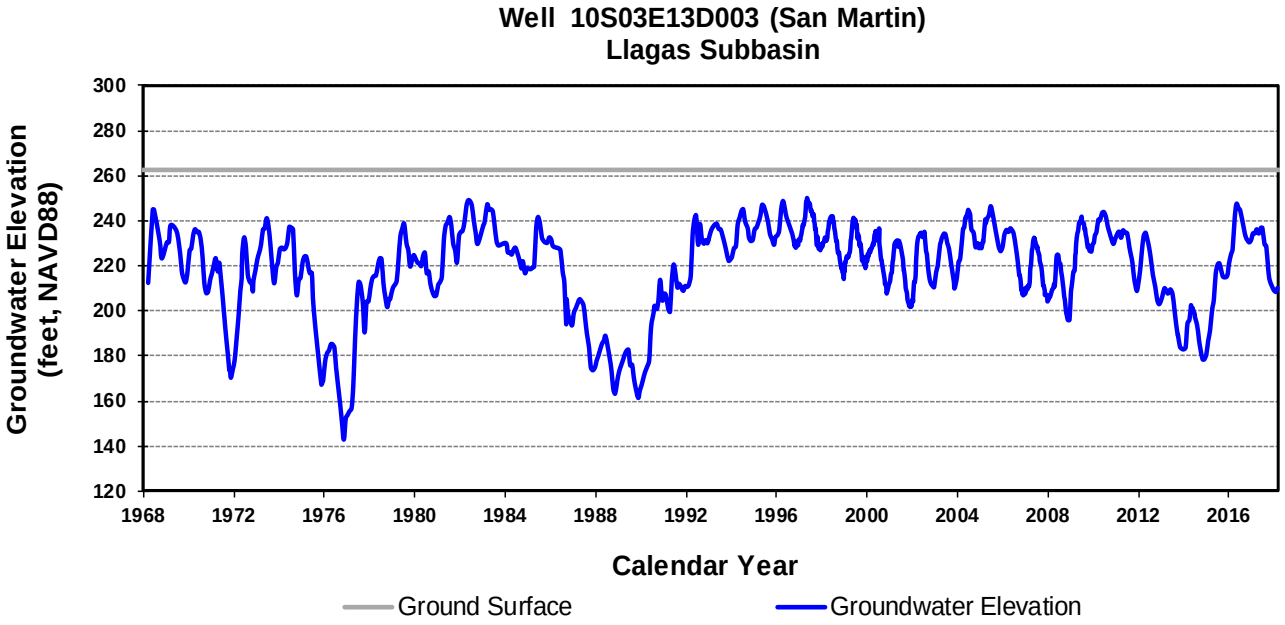
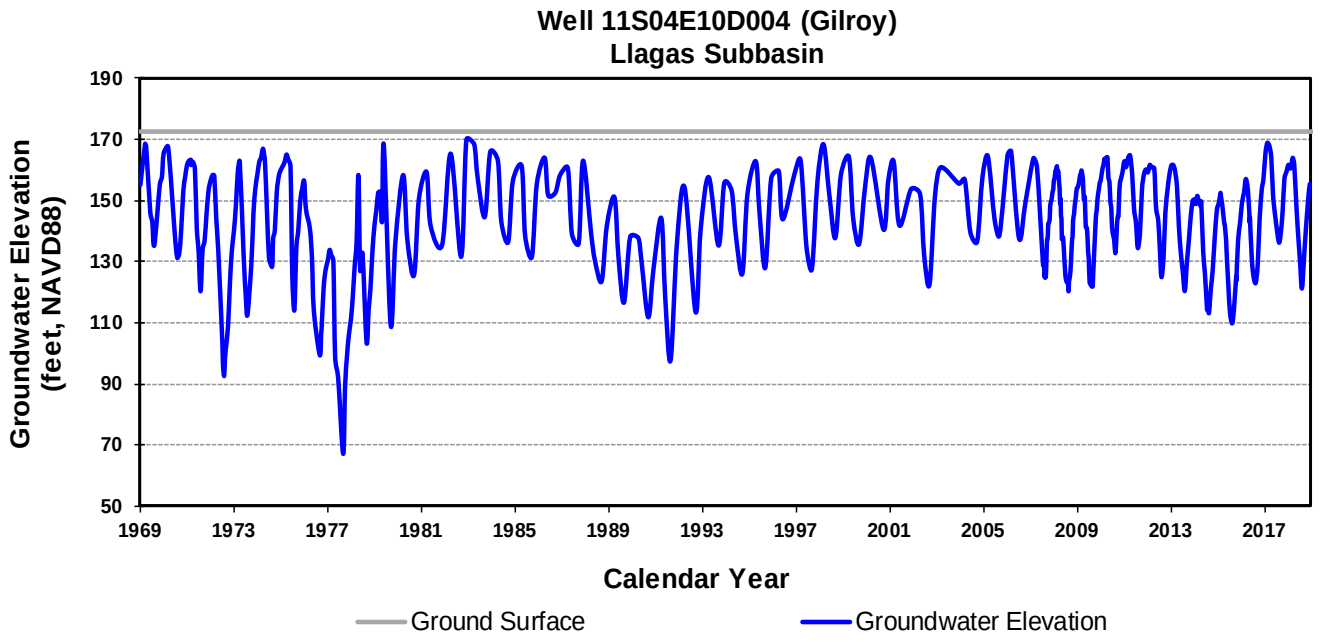


Figure 5. Hydrographs at Regional Groundwater Elevation Monitoring Wells (continued)



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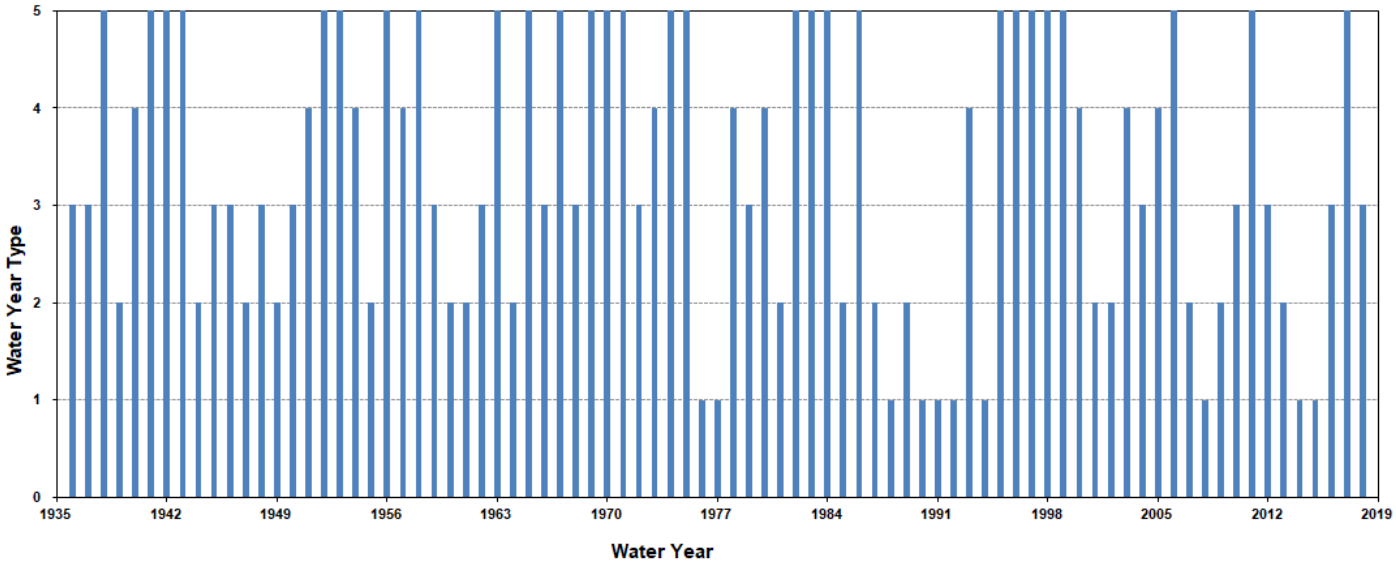
Chapter 2 – Groundwater Elevation Data

WY 2018 was a below-normal year per the DWR Sacramento River Index (SRI). Valley Water uses historical SRI water year types (Figure 6) to model hydrologic conditions in Santa Clara County as it reflects conditions in the Sierra and the Sacramento-San Joaquin Delta that influence Valley Water's imported water deliveries. Rainfall stations within Santa Clara County confirm that the rainfall season from July 1, 2017 to June 30, 2018 was below the historical average. For instance, rainfall in downtown San Jose (Station 131) was approximately 8.5 inches or 59 percent of average.

Figure 6. Water Year Types from WY 1936 to 2018 – Sacramento River Index (SRI)



Water Year Types per DWR SRI: 1 (Critical); 2 (Dry); 3 (Below Normal); 4 (Above Normal); 5 (Wet)

CHAPTER 3 – WATER SUPPLY AND USE

Valley Water manages a diverse water supply portfolio, with sources including groundwater, local surface water, imported water, and recycled water. About half of the county's water supply comes from local sources with the other half from imported sources. Imported water includes Valley Water's State Water Project (SWP) and Central Valley Project (CVP) contract supplies, and supplies delivered by the San Francisco Public Utilities Commission (SFPUC) to cities in northern Santa Clara County. Local sources include natural groundwater recharge and surface water supplies. A small but growing portion of the county's water supply is recycled water.

Valley Water distributes local and imported surface water supplies to managed recharge facilities, three drinking water treatment plants, local creeks for environmental needs, or directly to water users. The conjunctive management of surface water and groundwater maximizes water supply reliability, allowing Valley Water to store surface water in local groundwater basins to help balance pumping and provide reserves for use during dry years.

3.1 Groundwater Extraction

Total groundwater pumping in WY 2018 was about 122,200 acre-feet (AF), providing 41 percent of the water used by county residents and businesses. Figure 7 shows the location and volume of groundwater pumping, and Table 1 summarizes WY 2018 pumping by subbasin, water use category, and measurement method and accuracy.

About 79,600 AF of groundwater was pumped in the Santa Clara Subbasin, with 95% of that supporting municipal and industrial (M&I) uses. Agricultural and domestic use totaling about 4,200 AF was generally limited to the more rural Coyote Valley in the southern part of the subbasin. Total pumping in the Llagas Subbasin was about 42,600 AF. In this subbasin, agricultural use was more significant (23,500 AF), accounting for about 55% of the total pumping. M&I groundwater use was about 17,300 AF, or 41% of subbasin pumping. While the quantity of groundwater used for domestic purposes was relatively small in the Llagas Subbasin (about 1,800 AF, or 4%), nearly 2,600 individual domestic wells reported groundwater use in WY 2018.

Groundwater pumped from the subbasins is recorded in accordance with the Santa Clara Valley Water District Act. This act requires owners to register all wells within the county, and that water-producing wells within Valley Water's groundwater benefit zones file monthly, semi-annual, or annual production statements depending on the amount of water produced. By Valley Water Board Resolution, meters are only installed at those sites determined to be economically feasible per approved criteria or as required to facilitate the complete and accurate collection of groundwater production revenue. In the northern Zone W-2, which essentially overlaps the Santa Clara Plain, meters are required for facilities producing more than 4 AF of agricultural water or more than 1 AF of non-agricultural water annually. Within Zone W-5 (essentially coincident with the Coyote Valley and Llagas Subbasin), meters are required for facilities producing more than 20 AF of agricultural water or more than 2 AF of non-agricultural water.

Metered wells extracted the vast majority (91%) of the groundwater pumped in WY 2018. Where meters were not used, crop factors were used to determine agricultural water use, whereas domestic use was estimated from a table of average uses.

Figure 7. WY 2018 Groundwater Pumping in the Santa Clara and Llagas Subbasins

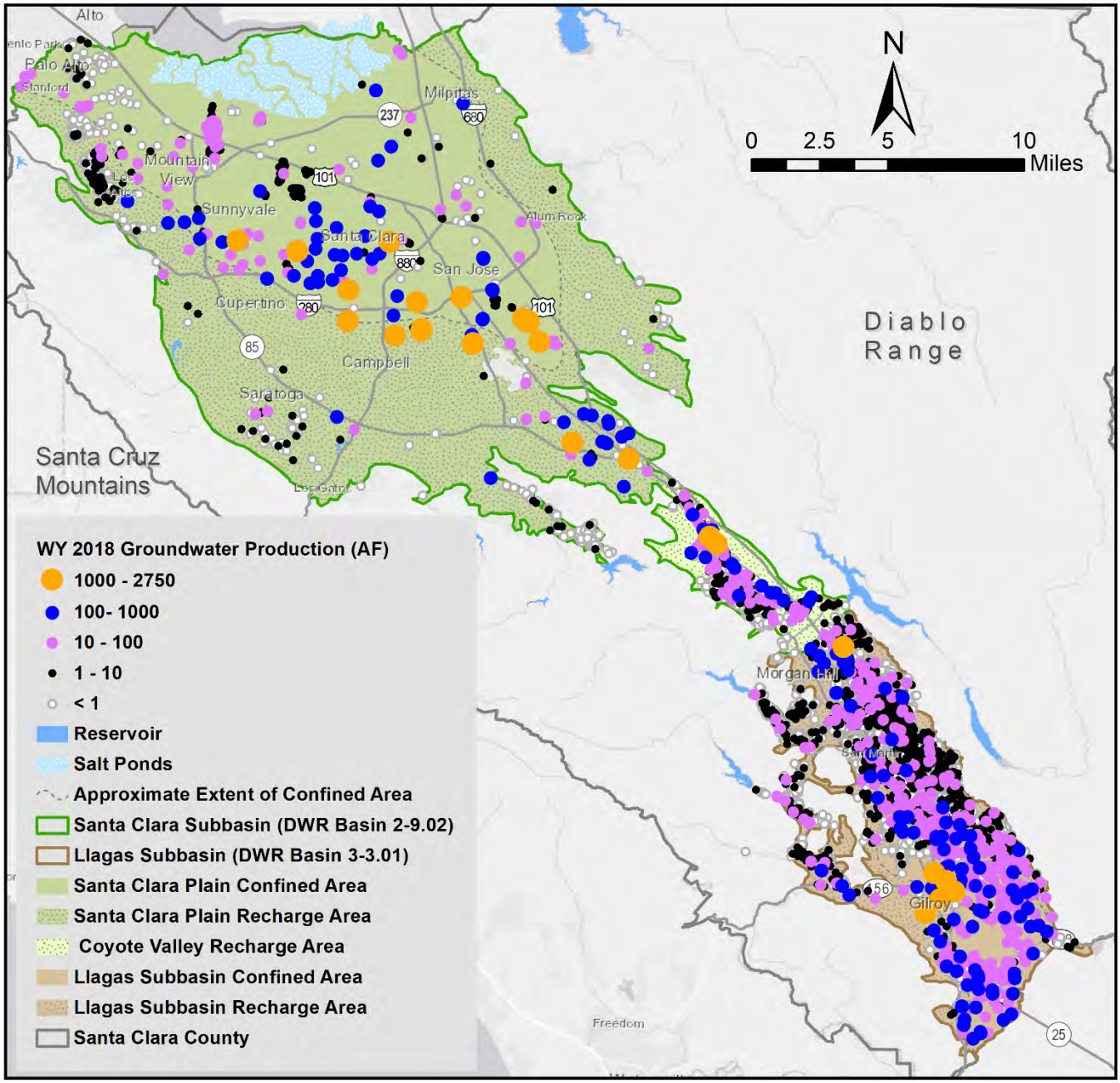


Table 1. WY 2018 Groundwater Pumping (AF) by Water Use

Water Use Sector	Measurement Method	Santa Clara Subbasin	Llagas Subbasin	Total Pumping	Accuracy
M&I	Metered	73,800	16,500	90,300	Within 2%
	Estimated	1,600	800	2,400	N/A
Domestic	Metered	100	100	200	Within 2%
	Estimated	400	1,700	2,100	N/A
Agricultural	Metered	2,900	17,300	20,200	Within 2%
	Estimated	800	6,200	7,000	N/A
Total		**79,600**	**42,600**	**122,200**	

Notes:

- As shown above, the majority of groundwater pumping is metered. Smaller pumpers are required to report production semi-annually or annually on a fiscal year (July 1 – June 30) basis. Non-metered pumpers report groundwater pumping based on crop factors (agricultural use) or table of average uses (domestic use). In this table, estimated pumping shown for the water year is based on fiscal year reporting and typical pumping patterns.
- All values are rounded to the nearest hundred.

3.2 Surface Water Supply Used

In WY 2018, Valley Water actively recharged about 118,700 AF of imported and local surface water in the Santa Clara and Llagas subbasins. Valley Water also provided about 107,600 AF of in-lieu recharge in the form of treated surface water deliveries to retailers (cities and water companies) and raw surface water deliveries to customers. This is in addition to SFPUC deliveries to eight retailers overlying the Santa Clara Subbasin and recycled water deliveries by Valley Water and four recycled water producers in the county, which totaled 64,200 AF countywide. Valley Water's long-term water conservation programs also saved about 76,000 AF, which further reduced the demand on groundwater.

Valley Water Managed Recharge

Valley Water replenishes the groundwater subbasins with imported water and watershed runoff captured in 10 local reservoirs. Valley Water's recharge facilities include more than 300 acres of recharge ponds and over 90 miles of creeks. Imported sources include the SWP and the federal CVP. The volumes of imported or local water used for managed recharge each year depend on many factors including hydrology, imported water allocations, treatment plants demands, and environmental needs. In general, a greater percentage of local water is used for recharge in wet years due to increased capture of storm runoff in local reservoirs. In WY 2018, Valley Water recharged about 98,400 AF of local and imported water in the Santa Clara Subbasin and about 20,300 AF in the Llagas Subbasin.

In-Lieu Use of Surface Water Supplies

Valley Water's treated and raw surface water deliveries, SFPUC supplies to local retailers, and recycled water programs play a critical role in maintaining groundwater elevations and storage by reducing demands on groundwater. Table 2 summarizes the supplies from these categories in areas that were historically primarily or solely served by groundwater.

3.3 Total Water Use

Total water use in Santa Clara County in WY 2018 is summarized in Table 2, which includes water use categories, measurement methods and accuracy, water sources, and use sectors. While the county boundary extends beyond the subbasins, the vast majority of the population and associated water use coincides with the subbasins.

Table 2. Santa Clara County Total Water Use in AF for WY 2018

Water Use[1]	Santa Clara Subbasin	Llagas Subbasin	County-wide	Measurement Method	Accuracy	Source	Sector
Groundwater Pumped	79,600	42,600	122,200	Metered (91%) and estimated[2]	Within 2 percent (metered)	Natural recharge, managed recharge of local runoff and imported (SWP/CVP) water	M&I, domestic and agricultural[3]
Valley Water Treated Water	105,500	0	105,500	Metered	Within 2 percent	Local runoff and imported (SWP/CVP) water	M&I
Valley Water Raw Surface Water Deliveries	800	1,300	2,100	Metered (95%) and estimated[2]	Within 2 percent (metered)	Local runoff and imported (SWP/CVP) water	M&I, domestic and agricultural
SFPUC Supplies to Local Retailers[4]	46,400	0	46,400	Metered	Within 1.5 percent	Surface water reservoirs[5]	M&I
Recycled Water	15,600	2,200	17,800	Metered	Variable[6]	Treated wastewater	M&I and agricultural
Total[7]	**247,900**	**46,100**	**294,000**				

[1] All water use values are rounded to the nearest hundred.
[2] Production from some smaller wells and raw surface water users is estimated using a table of average uses or crop factors.
[3] Groundwater use by sector is shown in Table 1.
[4] San Francisco Public Utilities Commission (SFPUC) supplies water to eight (8) retailers in Santa Clara County and NASA-AMES.
[5] SFPUC primary sources are surface water reservoirs with runoff mainly from the Hetch Hetchy watershed and also from the Alameda and Peninsula watersheds. More information is available at: https://sfwater.org/index.aspx?page=355.
[6] Recycled water meter accuracy varies as each of the four producers within the county uses different methods to measure production and delivery of recycled water.
[7] Local water rights used by the San Jose Water Company (SJWC) and Stanford within the Santa Clara Subbasin are not reflected in the total. In WY 2018, SJWC local water rights amounted to 6,400 AF. Stanford has historically used between 200 and 1,000 AFY.

3.4 Change in Groundwater Storage

Due to good water supply conditions, robust managed recharge, and continued lower groundwater use since the drought, Valley Water estimates a net increase in countywide groundwater storage of about 25,000 AF in WY 2018 compared to WY 2017. Storage increased by about 26,100 AF in the Santa Clara Subbasin and decreased by about 1,100 AF in the Llagas Subbasin. Groundwater storage is the primary trigger for action under Valley Water's Water Shortage Contingency Plan, and storage remained well in the "Normal" stage (e.g., no shortage response required) in WY 2018.

Figure 8 depicts the change in groundwater elevation from October 2017 to September 2018 at more than 200 principal aquifer water level wells in the Santa Clara Subbasin and more than 45 wells in the Llagas Subbasin, respectively. The corresponding change in storage, as estimated from Valley Water's calibrated groundwater flow models, is also shown.

Figures 9 and 10 present the water year type, groundwater use, annual change in groundwater storage, and cumulative change in groundwater storage for the Santa Clara and Llagas subbasins, respectively, from WY 1991 through WY 2018. These figures show that over this period, the annual change within each basin has most frequently been an increase in groundwater storage. The most notable exceptions, also evident in hydrographs, occur during droughts, as expected. However, Valley Water programs to recharge and manage groundwater support fairly rapid recovery of water levels and storage, helping ensure long-term sustainability. As mentioned previously, groundwater levels and storage in the Santa Clara and Llagas Subbasins recovered from the 2012-2016 drought, with groundwater elevations far above historical minima and drought levels, and strong artesian pressures observed in the northern Santa Clara Subbasin.

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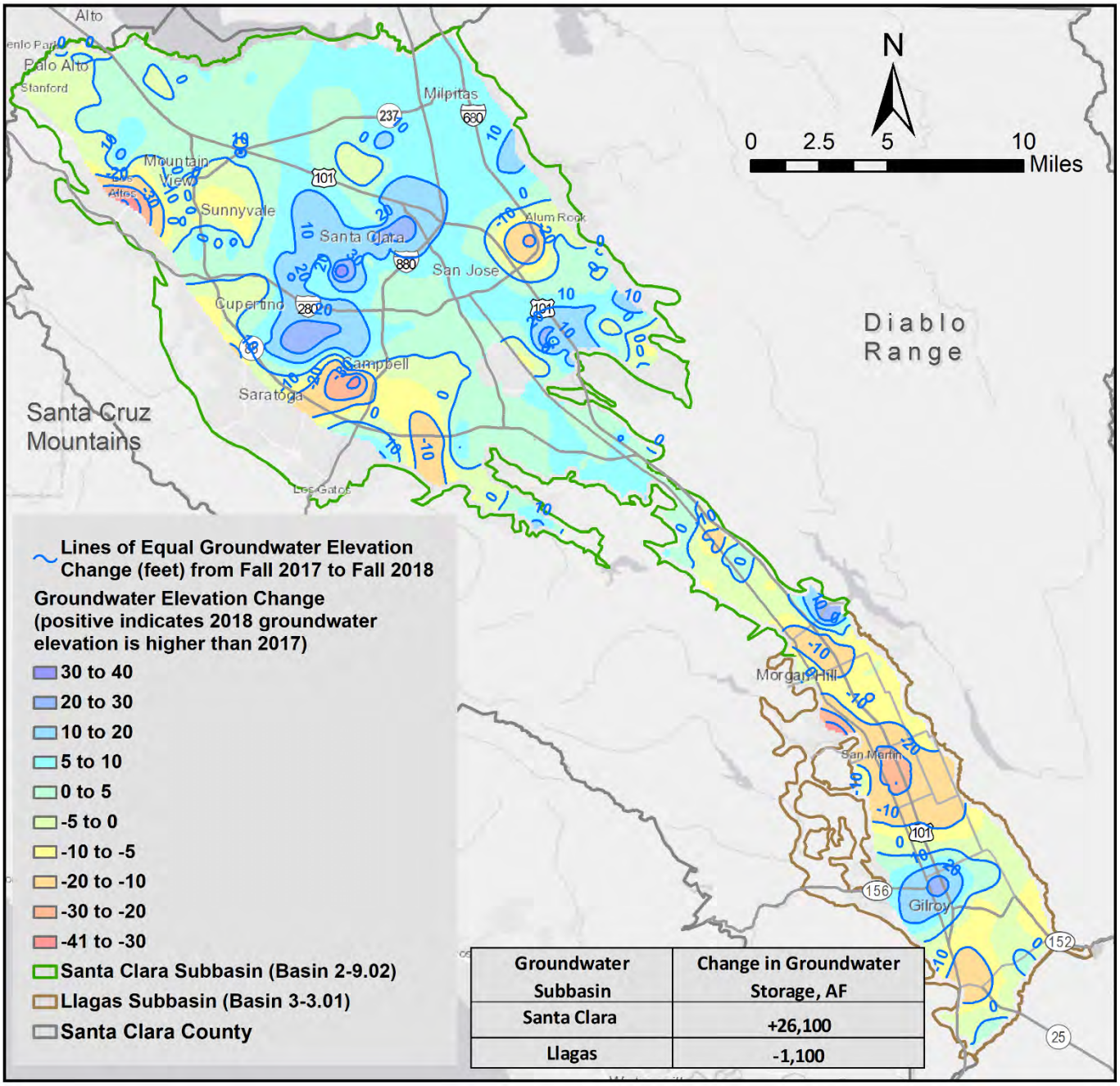
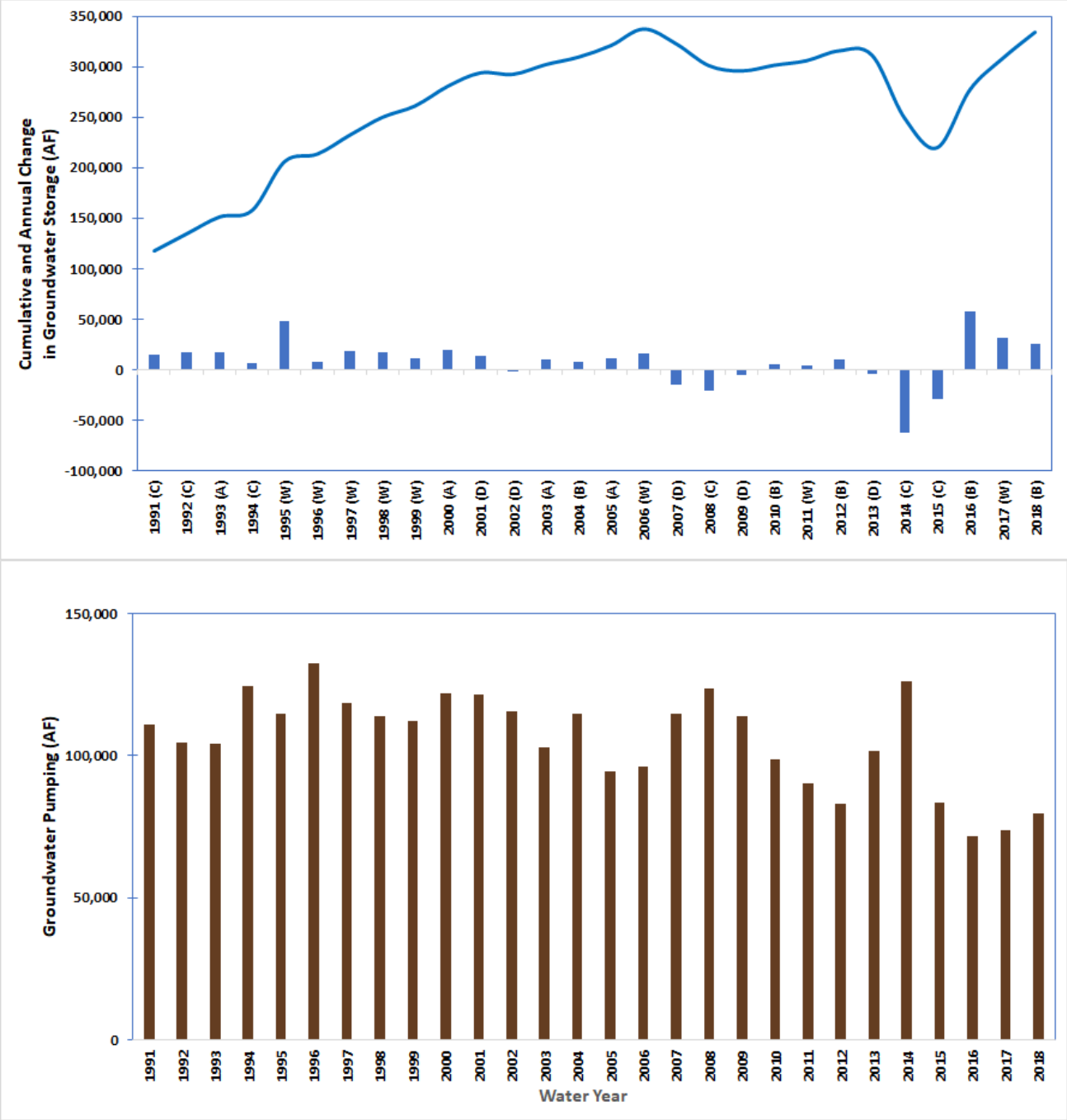
Figure 8. Change in Groundwater Elevation and Storage from October 2017 to September 2018



Groundwater Subbasin	Change in Groundwater Storage, AF
Santa Clara	+26,100
Llagas	-1,100

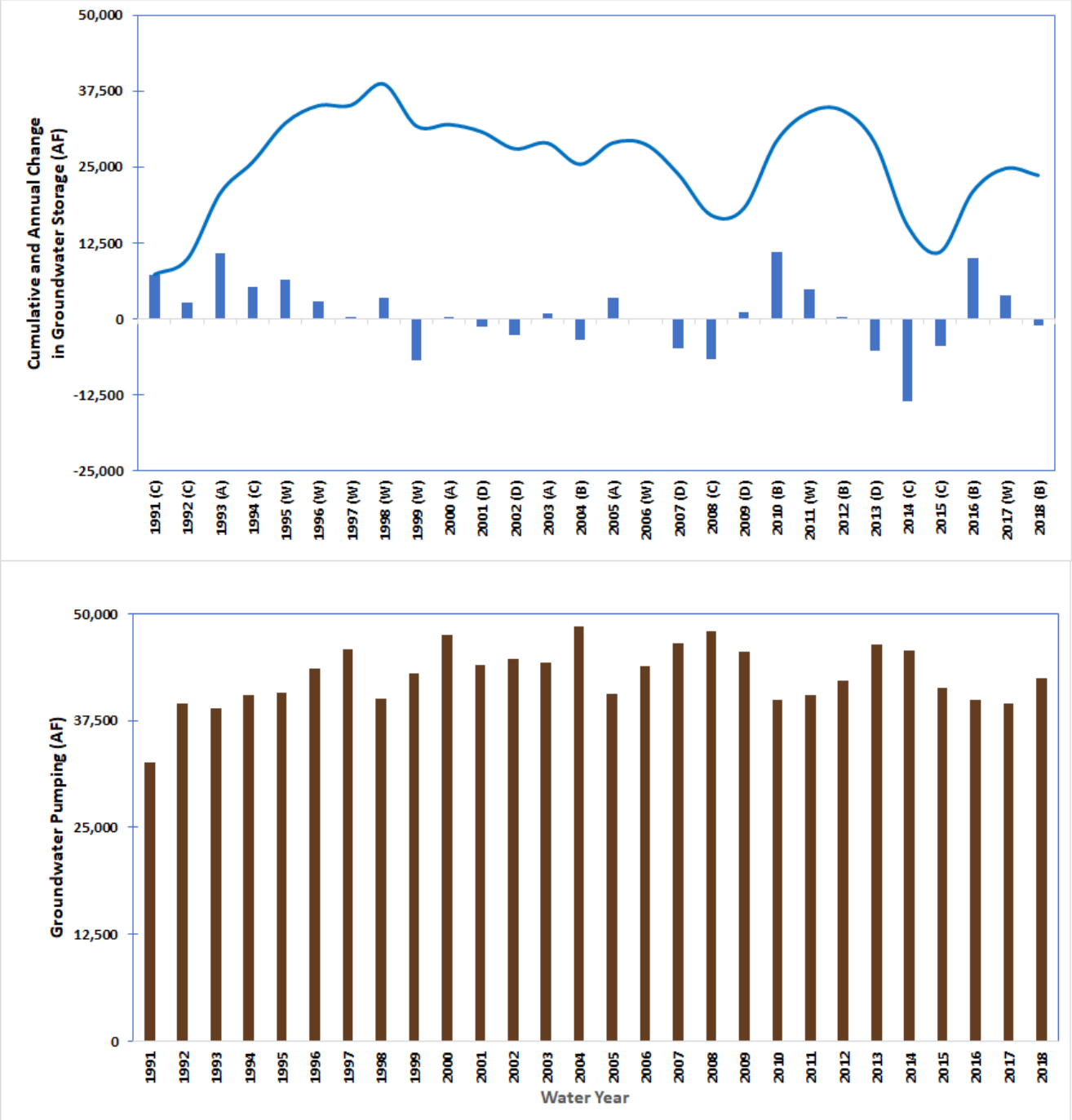
Figure 9. Groundwater Use and Change in Storage in the Santa Clara Subbasin



Notes:

- DWR SRI water year types are: Critical (C), Dry (D), Below Normal (B), Above Normal (A), and Wet (W).
- The storage graph begins in 1991 because Valley Water estimates Santa Clara Subbasin storage using two numerical models. The Santa Clara Plain model for the northern Santa Clara Valley begins in 1970 while the Coyote Valley model for the southern part of the subbasin begins in 1991 as Valley Water did not begin managing that area until the late 1980s.
- Most groundwater pumping is reported monthly and is reported here by water year. However, pumpers that report semi-annually or annually provide data based on the fiscal year (July 1 to June 30). For these reporters, groundwater pumping shown in this figure represents the fiscal year, which is presumed to be similar to the water year.

Figure 10. Groundwater Use and Change in Storage in the Llagas Subbasin



Notes:

- DWR SRI water year types are: Critical (C), Dry (D), Below Normal (B), Above Normal (A), and Wet (W).
- The storage graph begins in 1991 because Valley Water estimates Llagas Subbasin storage using a numerical model that begins in 1991 as Valley Water did not begin managing that area until the late 1980s.
- Most groundwater pumping is reported monthly and is reported here by water year. However, pumpers that report semi-annually or annually provide data based on the fiscal year (July 1 to June 30). For these reporters, groundwater pumping shown in this figure represents the fiscal year, which is presumed to be similar to the water year.

Attachment 1

CHAPTER 4 – PLAN IMPLEMENTATION

Valley Water continues to implement the comprehensive conjunctive management, groundwater monitoring, and groundwater protection programs described in the Plan. As a result, conditions in the Santa Clara and Llagas subbasins remained sustainable. In fact, groundwater levels and storage in the two subbasins have recovered to pre-drought conditions due to proactive drought response, improved water supplies, and significant recharge.

The Plan presents six major recommendations to maintain the long-term viability of groundwater resources. A summary of the status of each recommendation is below.

1. **Maintain existing conjunctive water management programs and evaluate opportunities for enhancement or increased efficiency.**

   This Plan recommendation has several sub-recommendations, including items related to infrastructure reliability, high-priority capital project implementation, and securing imported water sources, among others. Valley Water continues to focus on extensive groundwater recharge through direct replenishment and in-lieu recharge. Updates relative to this Plan recommendation are presented below.

   Capital Projects Supporting Conjunctive Management
   Valley Water's Fiscal Year 2019-23 Five-Year Capital Improvement Program (CIP) was adopted by the Board on May 8, 2018.[9] With a significant portion of Valley Water's water supply infrastructure approaching fifty to sixty years of age, maintaining and upgrading the existing infrastructure to ensure each facility functions as intended for its useful life became the focus of the Water Supply CIP in recent years. Other CIP projects focus on expanding in-lieu and direct recharge through recycled and purified water projects. Major water supply capital improvements identified in the CIP include:

   Storage:
   - Almaden Dam Improvements
   - Anderson Dam Seismic Retrofit
   - Calero Dam Seismic Retrofit
   - Guadalupe Dam Seismic Retrofit

   Transmission:
   - 10-Year Pipeline Rehabilitation
   - Fisheries and Aquatic Habitat Collaborative Effort (FAHCE) Implementation
   - Main and Madrone Pipeline Rehabilitation
   - Vasona Pumping Plant Upgrade

[9] The 2019-23 CIP is available at: https://www.valleywater.org/how-we-operate/five-year-capital-improvement-program

Treatment:
- Penitencia Water Treatment Plant Residuals Management
- Rinconada Water Treatment Plant Reliability Improvement

Recycled Water:
- Expedited Purified Water Program
- South County Recycled Water Pipeline

Detailed information on each of these water supply capital projects, including related description, costs, and schedule, is available in the CIP.

California WaterFix

On May 8, 2018, Valley Water Board voted to participate in the California WaterFix project, the state's proposed plan to improve the infrastructure that carries water through the Sacramento-San Joaquin Delta. This vote is in line with the Board's Oct. 17, 2017 vote which offered conditional support to the project and asked that the state consider a lower-cost, scaled-down and phased project. Valley Water will continue to engage in and negotiate financial arrangements and agreements to ensure local interests are served and Santa Clara County benefits are achieved.

Pacheco Reservoir Expansion Project

In conjunction with the San Benito County Water District and Pacheco Pass Water District, Valley Water is exploring the possibility of expanding the existing Pacheco Reservoir on the North Fork Pacheco Creek in south-east Santa Clara County. The reservoir is located 60 miles southeast of San Jose and sits north of Highway 152. The project will increase the reservoir's capacity from 5,500 to up to 140,000-acre feet. The Pacheco Reservoir Expansion Project will provide a number of benefits, including: reducing the frequency and severity of water shortages, increased emergency water supplies, augment groundwater recharge, provide surface water instead of groundwater pumping, improved water quality, providing flood protection for disadvantaged communities, ecosystems benefits through our region and the Sacramento-San Joaquin Delta, and protecting and growing the native steelhead population. The Pacheco Reservoir Expansion Project has been conditionally awarded the full amount requested by Valley Water of $484.55 million from the Proposition 1 Water Storage Investment Program (WSIP) fund, which also includes an early funding award of $24.2 million.

2. **Continue to aggressively protect groundwater quality through Valley Water programs and collaboration with land use agencies, regulatory agencies, and basin stakeholders.**

Sub-recommendations from the Plan include continued groundwater quality monitoring, action when potentially adverse trends are identified, and continued/enhanced collaboration with local partners and stakeholders.

Attachment 1

Groundwater quality is typically very good in the county, with no treatment beyond disinfection required at major retailer wells. However, nitrate remains an ongoing groundwater protection challenge, particularly in the more rural Coyote Valley and Llagas Subbasin. Valley Water continues to conduct extensive groundwater quality monitoring, evaluate long-term trends, and compare current conditions against regulatory standards and projected concentrations (such as from Salt and Nutrient Management Plans). Detailed information and analysis of all monitoring data is presented in Valley Water's Annual Groundwater Report, which is calendar-year based and published each summer.[10]

Long-term trends are favorable for nitrate, with about 90% of wells tested showing stable or decreasing concentrations. However, since a significant number of domestic wells in the Llagas Subbasin still contain nitrate above the drinking water standard, more work remains to be done. Valley Water offers rebates of up to $500 for nitrate treatment systems and will continue to engage with regulatory and land use agencies to address existing nitrate contamination. For nitrate and other water quality issues, Valley Water will work to build and enhance this collaboration to protect high-quality groundwater and expedite the restoration of impacted groundwater.

Valley Water is working with land use agencies on a Stormwater Resources Plan to increase infiltration while ensuring pollutants from urban runoff are not merely transmitted from surface water to groundwater. Similarly, Valley Water continues to engage with various entities to ensure that recycled water expansion or the use of purified water for recharge will be protective of groundwater quality.

Engaging with land use and regulatory agencies on proposed policy, legislation, and projects that may impact groundwater remains a key strategy for protecting groundwater. For example, Valley Water tracks the progress of major contaminant release sites, interacting with regulatory agencies to promote expedited and thorough cleanup. Valley Water also engages with land use agencies on relevant projects and policies such as development, stormwater infiltration devices, septic systems, and small water systems.

Public outreach continues to be an important component of Valley Water's groundwater protection efforts. In WY 2018, Valley Water celebrated Groundwater Awareness Week (March 11-17) by highlighting groundwater on the Valley Water website and posting related social media messages. Valley Water also maintained its status as a Groundwater Guardian through a program sponsored by the non-profit Groundwater Foundation. This is an annually-earned designation for communities and affiliates that take voluntary, proactive steps toward groundwater protection.

To provide information on well sampling by Valley Water and local water suppliers, Valley Water prepared the 2017 Groundwater Quality Summary (Attachment 1). This is similar to water retailer consumer confidence reports and provides basic groundwater quality information to domestic well owners who do not typically receive water from a water retailer.

[10] The comprehensive Annual Groundwater Report for each calendar year is available at www.valleywater.org/groundwater.

Other groundwater-related public outreach conducted by Valley Water in WY 2018 included:

- Interaction with thousands of students through the Education Outreach program.
- Direct communication with well owners on groundwater quality, well maintenance, and treatment systems under the Domestic Well Testing and Nitrate Treatment System Rebate programs.

3. Continue to incorporate groundwater sustainability planning in Valley Water planning efforts.

This Plan recommendation focuses on continued, thoughtful water supply planning and investments. Valley Water is working to complete an update to the Water Supply Master Plan to address future challenges to water supply reliability and implement related projects as appropriate. Staff has held multiple workshops with water retailers and stakeholders, and presented information to the Board and the Board's Water Conservation and Demand Management Committee on numerous occasions. These presentations have included information on the proposed level of service target and potential water supply portfolios. All portfolios currently under consideration include the "No Regrets" package, which includes advanced metering infrastructure, leak repair incentives, expansion of our graywater program, a model ordinance for new developments, decentralized stormwater capture (e.g., incentives for rain barrels, cisterns, and rain gardens), and centralized stormwater capture (e.g., flooding of agricultural lands).

Groundwater sustainability also remains an important factor during the planning and implementation of multi-benefit projects under Valley Water's One Water Plan. The Sustainable Groundwater and Water Quality objectives of the One Water Plan align with the Plan outcome measures and the process to identify individual projects on the watershed scale (e.g., Coyote Watershed) accounts for groundwater conditions and sustainability.

In 2013, Valley Water established a project team to lead its managed response to climate change. A goal of the managed response includes preparing a Climate Change Action Plan (CCAP) by the end of 2019. The CCAP will include comprehensive review of climate change as it relates to Valley Water core services, and include actions Valley Water can take now and those it should continue to evaluate into the future. The CCAP will identify potential future climate change impacts, risks, and vulnerabilities on all core service areas, including water supply and groundwater management. Using this information, areas with potential impacts will be assessed to identify existing, enhanced, or new strategies to reduce risks to Valley Water core services and its mission. The strategies will be incorporated into existing Valley Water plans, budgets, and long-term financial forecasts as appropriate.

4. Maintain adequate monitoring programs and modeling tools.

This Plan recommendation focuses on: improving monitoring networks by identifying and addressing gaps, redundancies, and access issues; identifying and implementing improvements to the numerical groundwater flow models; and improving Valley Water's understanding of surface water/groundwater interaction.
To supplement regional groundwater quality monitoring (which emphasizes the use of consistent wells), Valley

Water continues to offer free basic well testing for domestic well owners. Through this voluntary program, Valley Water obtains valuable data on nitrate and other contaminants while providing important water quality data to about 200 private well owners each year.

Valley Water is currently evaluating the recycled water and recharge water quality monitoring networks to ensure they meet monitoring objectives in terms of frequency, locations, and constituents analyzed. For the three groundwater flow models used, Valley Water is assessing each model to identify related improvements or enhancements that may be needed or desired to improve the use of these tools.

In addition to the comprehensive, calendar-year based Annual Groundwater Report Valley Water produces high-level monthly Water Tracker[11] and groundwater condition reports[12] help keep stakeholders informed about current groundwater conditions including groundwater pumping, recharge, and water levels.

Regarding surface water/groundwater interaction, Valley Water staff has begun to evaluate existing available data for stream gauging and groundwater levels. Valley Water is also evaluating whether existing wells adjacent to creeks may be useful in collecting additional data to better understand the interaction. Staff has attended workshops organized by DWR and reviewed both relevant literature and how other GSAs are working to better understand groundwater-surface water interaction. Staff has also performed preliminary experiments to measure the flux between surface water and groundwater. Valley Water will continue to explore the complex and dynamic interaction between surface water and groundwater, and will engage interested stakeholders. This issue will be further documented in the five-year Groundwater Management Plan update, which is due in 2021.

5. Continue and enhance groundwater management partnerships with water retailers and land use agencies.

This Plan recommendation focuses on continued collaboration and strong partnerships with water retailers and land use agencies. Valley Water continues to interact regularly with water retailers through quarterly Water Retailer meetings, including the Groundwater Subcommittee. In addition to these regular meetings, Valley Water and water retailers collaborate on various issues that arise regarding groundwater, treated water, wells, and water measurement.

Valley Water also continues to coordinate with local land use agencies on General Plans, water supply assessments, Urban Water Management Plans, stormwater management, and various individual land use projects. Land use decisions fall under the authority of the local cities and the County of Santa Clara. Valley Water reviews land use and development plans related to Valley Water facilities and watercourses under Valley Water jurisdiction, and provides technical review for other land use proposals as requested by the local agency. When provided by land use agencies, water supply assessments for new developments are also reviewed and

[11] https://www.valleywater.org/your-water/water-supply-planning/monthly-water-tracker
[12] https://www.valleywater.org/your-water/where-your-water-comes-from/groundwater/groundwater-monitoring

evaluated in the context of Valley Water's long-term water supply plans. For all reviews, Valley Water's groundwater-related comments focus on potential impacts to groundwater quality and sustainability.

6. Evaluate the potential new authorities provided by SGMA.

The Santa Clara Valley Water District Act provides broad authorities, but there are additional authorities under SGMA including the ability to regulate pumping or impose various types of fees. This Plan recommendation focused on the evaluation of these new SGMA authorities in cooperation with water retailers and other interested stakeholders to consider what conditions might necessitate their implementation to sustainably manage groundwater into the future.

As described in the WY 2017 Report submitted to DWR, throughout 2017 Valley Water explored new SGMA authorities with interested stakeholders through the Board's Water Conservation and Demand Management Committee (Committee). Nine publicly-noticed Committee meetings between December 2016 and December 2017 provided a transparent forum for discussion with interested stakeholders on how and when these authorities might be used.

The potential regulation of pumping or well construction, a complex and controversial topic, was discussed extensively through Committee meetings. Existing groundwater management programs and strong partnerships with large pumpers are expected to result in continued sustainable conditions and are the preferred way to address future challenges. However, pumping regulation may be needed in the future to address undesirable results, should they occur or be projected to occur. The primary SGMA-related work product from the Committee meetings was a process that describes the fundamental approach to respond to worsening basin conditions. This includes the steps that would be taken prior to implementing SGMA authorities to regulate groundwater pumping, with a focus on providing some certainty on the process, while avoiding prescriptive requirements that may not be effective in addressing a future issue. This process was memorialized via a resolution adopted by Valley Water Board on February 27, 2018 (Attachment 2).

Valley Water also explored the potential to implement a fixed charge as a component of groundwater production charges, which are currently volumetric charges. This could potentially reduce volatility in rates and revenues based on changes in water use. Valley Water engaged a consultant to develop a fixed charge proposal and assist with implementation. However, major water retailers expressed significant concerns, including redundancy with other charges or charge adjustment mechanisms, equity in applying the charge to all well users, and potential cost recovery impacts to retailers regulated by the California Public Utilities Commission. After discussing these concerns with the Committee and the full Board, Valley Water is unlikely to further pursue a fixed charge at this time.

NEXT STEPS

Valley Water will continue to submit annual reports required under SGMA to DWR by the April 1 deadline. In addition to this brief report, Valley Water will also continue to publish a comprehensive, calendar-year based Annual Groundwater Report each summer with more detailed information on pumping, recharge, water balance, groundwater levels and storage, land subsidence and groundwater quality. The most recent report, the Annual Groundwater Report for Calendar Year (CY) 2017, is posted on the Valley Water website, and will be replaced with the CY 2018 Report in the summer of 2019.[13]

Ensuring continued groundwater sustainability is central to the Valley Water mission to provide Silicon Valley a safe, clean water supply for a healthy life, environment, and economy. As such, Valley Water will continue to "aggressively protect groundwater from the threat of contamination and maintain and develop groundwater to optimize reliability and to minimize land subsidence and salt water intrusion," in accordance with Board policy.

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[13] https://www.valleywater.org/your-water/where-your-water-comes-from/groundwater

Attachment 1

Annual Groundwater Quality Summary Report

for Testing Performed in Calendar Year 2017

Annual Groundwater Quality Summary Report

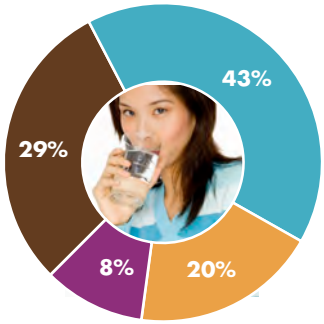
For Testing Performed in 2017

Santa Clara Valley Water District

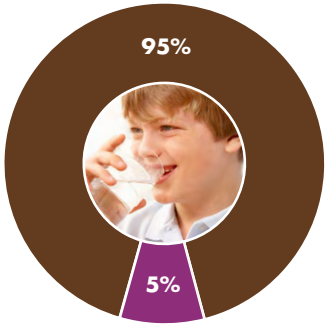
Protecting our Groundwater

Groundwater is an essential local water resource, providing about half of the water used in Santa Clara County each year. In some areas, groundwater is the only source of drinking water. Protecting our groundwater helps ensure that adequate supplies are available now and in the future.

NORTH COUNTY WATER USE



SOUTH COUNTY WATER USE



- Groundwater
- Treated Water
- Hetch-Hetchy
- Other Local and Recycled Water

The Santa Clara Valley Water District works to safeguard groundwater by:

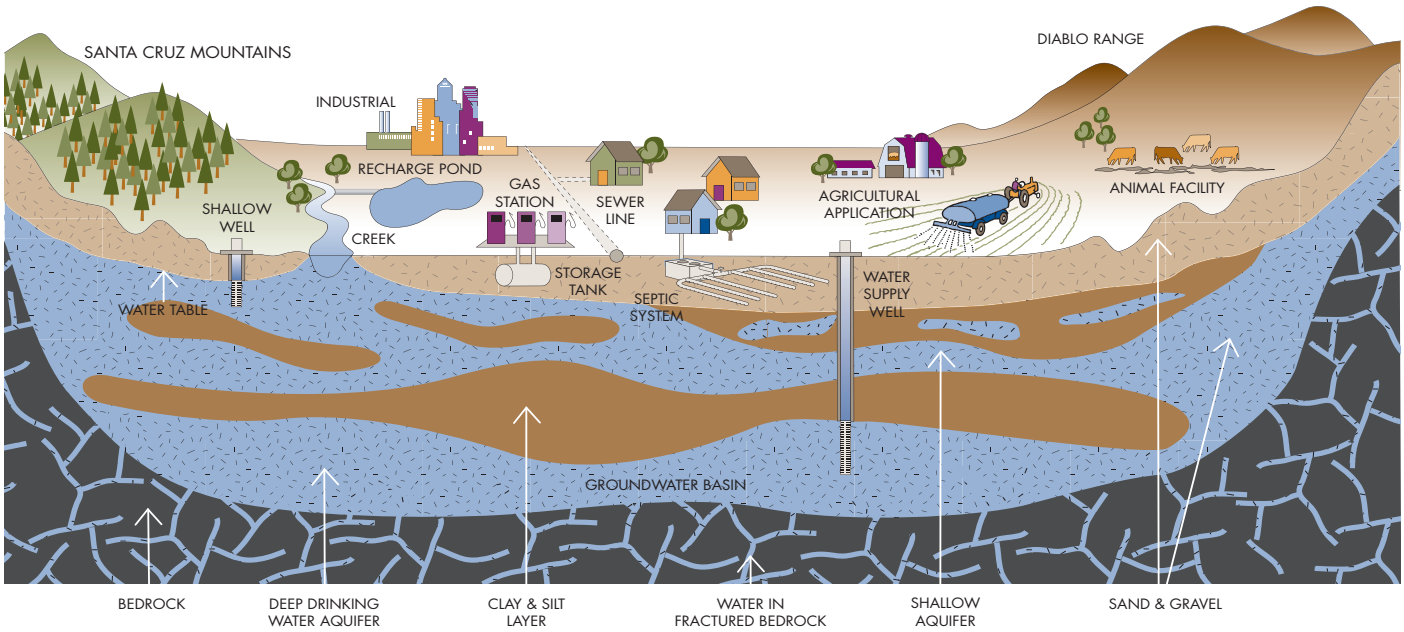
- Replenishing groundwater basins with local and imported surface water.
- Reducing demands on groundwater through the delivery of treated water, water conservation, and water recycling.
- Monitoring groundwater and conducting programs to protect against contamination.

Well water testing throughout the county indicates that groundwater quality is generally very good. All drinking water, including bottled water, trail closure, contains small amounts of some contaminants. As water travels over the surface of the land and through the ground, it dissolves naturally occurring minerals and can pick up substances from animal and human activities.

Contaminants that may be present in groundwater include:

- Microbial contaminants such as viruses and bacteria that may come from sewage treatment plants, sewer lines, septic systems, agricultural operations, and wildlife.
- Inorganic contaminants such as salts and metals that can be naturally occurring or result from industrial or domestic wastewater discharges, animal facilities, farming, and mining.
- Insecticides, herbicides, and fertilizers, that may come from agriculture, and residential uses.
- Organic chemicals from industrial processes, gas stations, dry cleaners, agricultural application, and septic systems.
- Radioactive contaminants that are naturally occurring in our area.

The presence of contaminants does not necessarily indicate that water poses a health risk. State and federal drinking water standards identify maximum contaminant levels that relate to health risk.



2017 Groundwater Quality Summary

Monitoring confirms generally high groundwater quality, but South County nitrate is a concern

In 2017, the water district sampled over 290 domestic wells and evaluated data from another 225 public water supply wells in North and South County (see map on back page). Nearly all wells tested meet drinking water standards with the notable exception of nitrate in some South County domestic wells. The water district works with regulatory and land use agencies on this ongoing challenge.

The table below summarizes the results for any substance detected in a domestic or public water supply well in 2017; not every well was tested for all substances listed. Although Maximum Contaminant Levels (MCLs) apply only to public water systems, MCLs are helpful in understanding results from domestic wells. Please note this regional summary may not reflect the water quality in every well since each property and well is unique.

Primary Drinking Water Standards – Public Health Related Standards				North County		South County		
Inorganic Contaminants	Units	Maximum Contaminant Level	Public Health Goal	Medium	Range	Medium	Range	Typical Sources
Aluminum	ppb	1,000	600	3.18	ND - 1,700	11.1	ND - 820	Erosion of natural deposits
Antimony	ppb	6	1	ND	ND	ND	ND - 9.9	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	ppb	10	0.004	ND	ND - 4	ND	ND - 4	Erosion of natural deposits; glass and electronics production waste
Asbestos	MFL	7	7	ND	ND - 0.7	2.99	ND - 18	Erosion of natural deposits
Barium	ppb	1,000	2,000	135	ND - 310	97.9	ND - 300	Erosion of natural deposits
Chromium (total)	ppb	50	–	1.10	ND - 1.7	1.20	ND - 3.8	Erosion of natural deposits; metal plating
Chromium-6 (hexavalent)	ppb	–	0.02	2.20	ND - 7.9	4.00	ND - 7.8	Erosion of natural deposits; metal plating and industrial discharges
Fluoride	ppm	2	1	0.141	ND - 0.84	0.150	ND - 1.06	Erosion of natural deposits
Mercury	ppb	2	1.2	ND	ND - 1.9	ND	ND	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and cropland
Nickel	ppb	100	12	1.20	ND - 16	ND	ND - 4.5	Erosion of natural deposits; discharge from metal industries
Nitrate + Nitrite (as N)	ppm	10	10	2.40	ND - 6.1	3.40	0.41 - 7.1	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate (as N)	ppm	10	10	3.00	ND - 29.2	6.13	0.06 - 73.7	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Perchlorate	ppb	6	1	ND	ND	ND	ND - 4.5	Solid rocket propellant, fireworks, explosives, flares, matches, and a variety of industries
Selenium	ppb	50	30	6	ND - 11	ND	ND - 5	Erosion of natural deposits
Radioactive Contaminants								
Gross Alpha	pCi/L	15	–	2	ND - 8.3	ND	ND - 0.43	Erosion of natural deposits
Gross Beta	mrem/yr	4	–	–	–	0.148	0.148	Erosion of natural deposits
Radium 226	pCi/L	–	0.05	ND	ND	0.128	0.128	Erosion of natural deposits
Tritium	pCi/L	20,000	400	–	–	170	170	Erosion of natural deposits
Uranium	pCi/L	20	0.43	ND	ND	0.294	0.294	Erosion of natural deposits
Volatile Organic Chemicals								
1,1,1-Trichloroethane (1,1,1-TCA)	ppb	200	1,000	ND	ND - 1.2	ND	ND	Discharge from metal degreasing sites and other industrial processes
1,1-Dichloroethene (1,1-DCE)	ppb	6	10	ND	ND - 0.87	ND	ND	Discharge from industrial processes
Haloaccetic Acids (HAA5)	ppb	60	–	4.40	4.40	–	–	Drinking water chlorination
Tetrachloroethene (PCE)	ppb	5	0.06	ND	ND	ND	ND - 2.2	Discharge from industrial processes, dry cleaners, and automotive repair
Total Trihaloethanes (THMs)	ppb	80	–	ND	ND - 21.2	ND	ND - 1.6	Drinking water chlorination
Microbiological Contaminants[1]				Present	Absent	Present	Absent	Typical Sources
E. Coli Bacteria		–	–	4	23	5	263	Human and animal fecal waste
Total Coliform Bacteria		–	–	11	16	91	177	Naturally present in the environment

Notes: 1) The table shows the number of domestic wells tested that had bacteria present or absent. Public water systems are required to ensure that fewer than 5% of samples have total coliform present and that no samples have e.coli present. Domestic wells are not subject to these standards.

Terms and Definitions

Color units: A measure of color in water

Maximum Contaminant Level (MCL): The highest level of a contaminant allowed in public water systems. Primary MCLs are set as close to PHGs as is economically and technologically feasible. Secondary MCLs protect the odor, taste, and appearance of drinking water.

Median: The "middle" value of the results, with half of the values above the median and half of the values below the median.

MFL: Million Fibers per Liter

mrem/yr: Millirems per year

ND: Not detected (at laboratory testing limit)

NTU: Nephelometric Turbidity Units

pCi/L: picoCuries per liter (a measure of radiation)

– Indicates there is no related drinking water standard, or that the substance was not tested.

ppm: parts per million (milligrams per liter)

ppb: parts per billion (micrograms per liter)

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to human health. PHGs are set by the California EPA.

TON: Threshold Odor Number

uS/cm: microSiemens per centimeter (a measure of the dissolved inorganic salt content)

2017 Groundwater Quality Summary

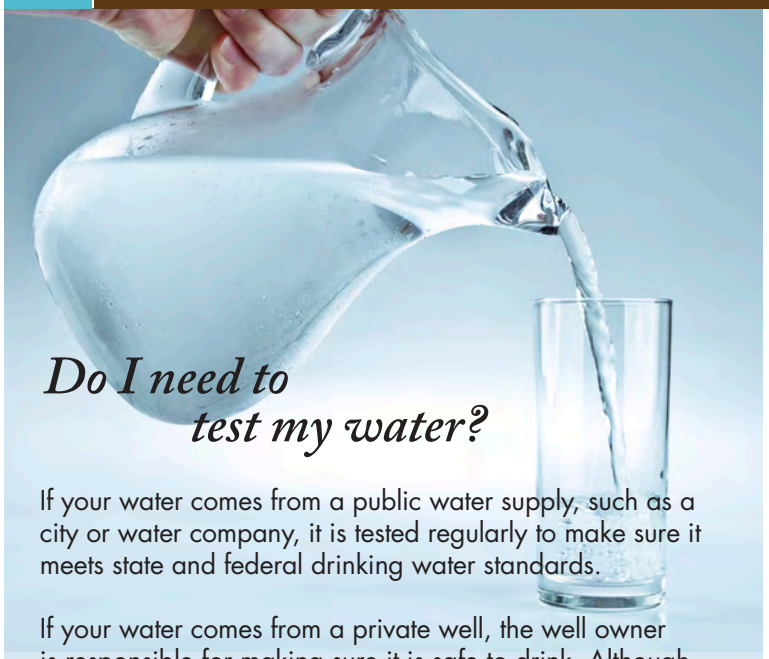
Secondary Drinking Water Standards – Aesthetic Standards	Units	Maximum Contaminant Level	Public Health Goal	North County Medium	North County Range	South County Medium	South County Range	Typical Sources
Chloride	ppm	250	–	49.0	13 - 89	46.0	17 - 135	Runoff/leaching from natural deposits; seawater influence
Color	Color Units	15	–	5.00	ND - 31	6.00	ND - 9	Naturally occurring organic materials
Copper[1]	ppb	1,000	300	1.80	1.4 - 120	3.10	ND - 16.6	Internal corrosion of household plumbing systems; erosion of natural deposits
Foaming Agents (MBAS)	ppb	500	–	ND	ND - 0.1	ND	ND	Municipal and industrial waste discharges
Iron	ppb	300	–	51.9	41 - 3,900	2.71	26 - 6,300	Leaching from natural deposits; industrial wastes
Manganese	ppb	50	–	2.69	ND - 240	0.745	ND - 1,200	Leaching from natural deposits; industrial wastes
Odor Threshold	TON	3	–	ND	ND - 1.4	ND	ND	Naturally occurring organic materials
pH	pH units	6.5 - 8.5	–	7.53	6.23 - 8.1	7.75	7.45 - 8	Erosion of natural deposits; carbon dioxide emissions; rainfall
Specific Conductance	uS/cm	900	–	664	349 - 1,840	655	299 - 2,380	Substances that form ions when in water; seawater influence
Sulfate	ppm	250	–	47.0	3.6 - 196	38.0	ND - 224	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	ppm	500	–	400	270 - 1,100	376	244 - 608	Runoff/leaching from natural deposits
Turbidity	NTU	5	–	0.460	ND - 4.9	0.205	ND - 2	Soil runoff
Zinc	ppb	5,000	–	0.865	ND - 670	4.17	ND - 340	Runoff/leaching from natural deposits; industrial wastes
Other Water Quality Parameters								
Alkalinity (total, as CaCO3)	ppm	–	–	220	120 - 380	179	93 - 344	Atmospheric and vadose zone carbon dioxide
Boron	ppb	–	–	ND	ND - 506	120	ND - 2,000	Erosion of natural deposits
Bromide	ppm	–	–	0.140	ND - 0.49	0.160	ND - 1.56	Erosion of natural deposits; seawater intrusion; sea spray
Bromodichloromethane (THM)	ppb	–	–	ND	ND - 5.5	ND	ND	Drinking water chlorination
Bromoform (THM)	ppb	–	–	ND	ND - 5.4	ND	ND	Drinking water chlorination
Calcium	ppm	–	–	63.0	23.5 - 110	53.1	32.9 - 99.6	Erosion of natural deposits
Carbon dioxide	ppb	–	–	8.13	ND - 240	ND	ND	Atmospheric sources; dissolution of carbonate rocks
Carbonate (as CO3)	ppm	–	–	ND	ND - 2	ND	ND	Atmospheric sources; dissolution of carbonate rocks
Chloroform (THM)	ppb	–	–	ND	ND - 2.74	ND	ND - 1.6	Drinking water chlorination
Cobalt	ppb	–	–	ND	ND - 0.21	ND	ND	Leaching from natural deposits; industrial wastes
DCPA (Total Di & Mono Acid Degradates)	ppb	–	–	ND	ND - 0.7	ND	ND	Herbicide used to control grasses and weeds
Dibromochloromethane (THM)	ppb	–	–	ND	ND - 7.9	ND	ND	Drinking water chlorination
Dichloroacetic Acid	ppb	–	–	2.7	2.7	–	–	Drinking water chlorination
Hardness (total, as CaCO3)	ppm	–	–	290	122 - 636	271	ND - 728	Erosion of natural deposits
Lead[1]	ppb	–	0.2	0.390	ND - 16	ND	ND - 2.35[2]	Erosion of natural deposits; internal corrosion of household water plumbing systems; discharges from industrial manufacturers
Lithium	ppb	–	–	5.60	ND - 25	10.0	ND - 28	Erosion of natural deposits; discharge from industrial uses
Magnesium	ppm	–	–	29.1	8.2 - 67	31.0	17 - 59.2	Erosion of natural deposits
Molybdenum	ppb	–	–	0.900	ND - 5.1	ND	ND - 3.5	Erosion of natural deposits
Monobromoacetic Acid (MBAA)	ppb	–	–	1.7	1.7	–	–	Drinking water chlorination
Orthophosphate	ppm	–	–	0.070	ND - 2.3	ND	ND - 1.56	Leaching from natural deposits; agricultural runoff
Potassium	ppm	–	–	1.30	ND - 2.1	1.25	ND - 2.1	Erosion of natural deposits
Silica	ppm	–	–	26.7	25 - 28.4	27.1	12 - 47.7	Erosion of natural deposits
Sodium	ppm	–	–	32.0	15 - 84.8	26.0	13.2 - 80.5	Erosion of natural deposits
Vanadium	ppb	–	–	2.79	ND - 13.5	1.70	ND -14	Erosion of natural deposits; discharge from industrial uses

Notes:

1) Lead and copper do not have primary MCLs, but have "action levels" of 15 and 1,300 ppb, respectively. These substances are regulated by the state for public water systems since they can adversely affect public health.

2) One high lead result (1,000 ppb) was not confirmed by follow-up testing. The next highest level measured was 2.35 ppb as shown.

– Indicates there is no related drinking water standard, or that the substance was not tested.



Do I need to test my water?

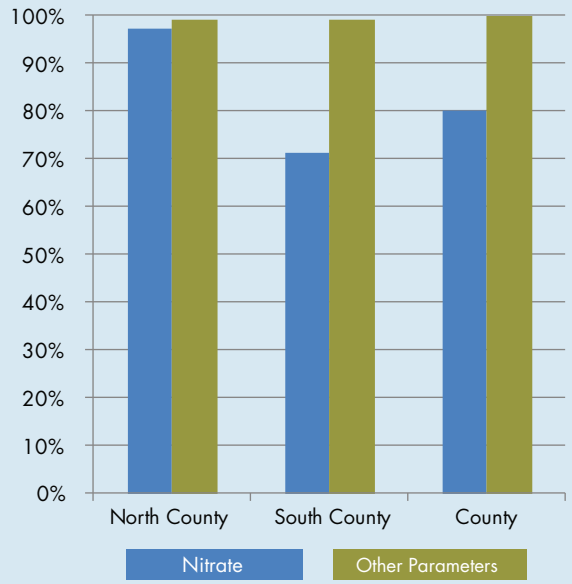
If your water comes from a public water supply, such as a city or water company, it is tested regularly to make sure it meets state and federal drinking water standards.

If your water comes from a private well, the well owner is responsible for making sure it is safe to drink. Although the water district monitors regional groundwater quality, every property and well is unique. Some contaminants are colorless and odorless, so the first step in protecting your health is having your water tested.

The water district encourages private well owners to have their well water tested by a state-certified laboratory annually or anytime there is a change in taste, odor, or appearance. If your water contains any contaminant above drinking water standards, you may want to install a treatment system or use an alternative source of water.

The water district currently offers eligible domestic well users free basic water quality testing and rebates of up to $500 for nitrate treatment systems. Call the Groundwater Hotline at (408) 630-2300 to find out more.

WATER SUPPLY WELLS TESTED IN 2017 MEETING PRIMARY DRINKING WATER STANDARDS



Everyone has a role in protecting groundwater. Well owners should maintain their wells and septic systems, and create a zone of protection around their wells where potential contaminants are not used or stored. See the water district's Guide for the Private Well Owner at www.valleywater.org for helpful tips. All residents can help by conserving water and by raising awareness that activities on the land surface can affect our largest drinking water reservoir, which is beneath our feet.

Hot Topics in Water Quality

Nitrate

As shown in the chart to the left, nitrate is an ongoing challenge, particularly in South County. Common sources are fertilizers, septic systems and livestock waste, so nitrate is often higher in rural and agricultural areas.

Nitrate can interfere with the blood's ability to transport oxygen and is of greatest concern for infants and pregnant women. The effects of consuming high levels of nitrate are often referred to as "blue baby syndrome" and symptoms include shortness of breath and blueness of the skin.

The water district monitors nitrate conditions and trends, helps dilute nitrate through groundwater recharge, and works with land use and regulatory agencies. To help reduce domestic well owners' exposure to elevated nitrate, the water district is offering rebates of up to $500 for eligible treatment systems. Call the Groundwater Hotline at (408) 630-2300 for more information.

Perchlorate

Perchlorate is a salt used in rocket fuel, highway flares, fireworks and other products. At high levels, perchlorate can interfere with the thyroid gland and affect hormones that regulate metabolism and growth.

Perchlorate contamination from a former highway flare manufacturer in Morgan Hill was first discovered in 2000. At the urging of the water district and the community, the Central Coast Regional Water Quality Board has taken timely action to restore groundwater quality.

Due to cleanup activities and groundwater recharge, perchlorate levels have decreased dramatically. The area affected is getting smaller, now extending from Tennant Avenue south to approximately San Martin Avenue. The responsible party continues to remediate and monitor contaminated groundwater, and provides treatment systems or alternative water supplies for water supply wells with high levels of perchlorate (currently six).

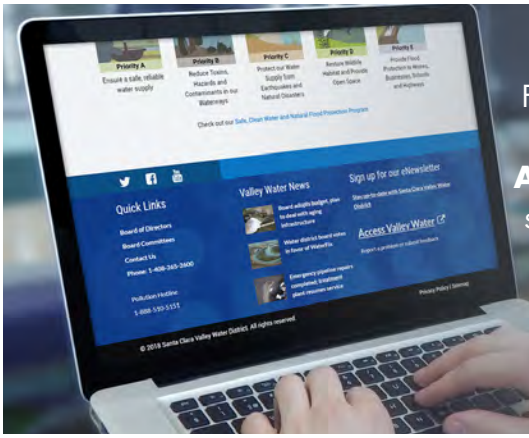
You live on a groundwater basin

NORTH COUNTY
Generally extends north from Metcalf Road to San Francisco Bay

SOUTH COUNTY
Extends from the Coyote Valley south to the Pajaro River

Health and education information

All drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained from the U.S. Environmental Protection Agency's Safe Drinking Water Hotline **(800-426-4791),** the California Division of Drinking Water **(www.waterboards.ca.gov/drinking_water/programs)**, the California Office of Environmental Health Hazard Assessment **(*www.oehha.ca.gov/water*)**, or from your healthcare provider.



CONTACT US

For more information, contact us at **(408) 630-2964** or by email at **gcook@valleywater.org.** Or use our **Access Valley Water** customer request and information system at valleywater.org to find out the latest information on district projects or to submit questions, complaints or compliments directly to a district staff person.

Follow us on: /scvwd /valleywater /valleywater

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Attachment 2

Resolution Memorializing the Process to Regulate Groundwater Extraction Under the Sustainable Groundwater Management Act, if Needed

BOARD OF DIRECTORS
SANTA CLARA VALLEY WATER DISTRICT

RESOLUTION NO. 18- 04

RESOLUTION MEMORIALIZING THE PROCESS TO REGULATE GROUNDWATER EXTRACTION UNDER THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT, IF NEEDED

WHEREAS, the Santa Clara Valley Water District Act (California Water Code Appendix, Chapter 60) provides the District with broad groundwater management authority, including the authority to protect, spread, store, retain, and cause water to percolate in the soil within Santa Clara County; and

WHEREAS, on September 16, 2014, the Sustainable Groundwater Management Act (SGMA) was signed into law and adopted into the California Water Code, commencing with Section 10720; and

WHEREAS, Water Code Section 10720.1 states that, in enacting SGMA, the intent of the legislature is to provide for the sustainable management of groundwater basins, to enhance local management of groundwater consistent with rights to use or store groundwater, to establish minimum standards for sustainable groundwater management, to provide local groundwater agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater, and to achieve other listed intents; and

WHEREAS, on May 24, 2016, the District Board of Directors adopted Resolution 16-51 on the Decision to Become the Groundwater Sustainability Agency (GSA) for the Santa Clara and Llagas Subbasins; and

WHEREAS, on June 13, 2017, the District Board of Directors adopted Resolution 17-38 on the Decision to Become the GSA for the Portions of the Hollister and San Juan Bautista Subbasins Located Within Santa Clara County; and

WHEREAS, Water Code Section 10733.6(b)(1) identifies a plan developed pursuant to Part 2.75 (commencing with Section 10750) or other law authorizing groundwater management as an acceptable alternative to a Groundwater Sustainability Plan; and

WHEREAS, the 2016 Groundwater Management Plan (GWMP) describes the District's comprehensive framework to ensure continued, sustainable groundwater conditions in the Santa Clara and Llagas Subbasins; and

WHEREAS, on November 22, 2016, the District Board of Directors adopted the GWMP through Resolution 16-78; and

WHEREAS, the District submitted the GWMP to the California Department of Water Resources as an alternative pursuant to SGMA; and

WHEREAS, the GWMP acknowledges new authorities granted by SGMA, including the potential to regulate groundwater extraction, control well spacing or operation, and collect different types of fees, within the constraints identified in SGMA; and

WHEREAS, the existing groundwater management framework, which includes coordination with water retailers and other stakeholders, is expected to support continued, sustainable groundwater conditions; and

WHEREAS, the District Board of Directors directed the Water Conservation and Demand Management Committee (Committee) to engage stakeholders in evaluating the new SGMA authorities as potential tools that may be needed to ensure continued sustainability; and

WHEREAS, the Committee engaged water retailers and other interested stakeholders during nine publicly-noticed meetings between December 2016 and December 2017; and

WHEREAS, the Committee considered stakeholder input in developing the Process to Regulate Groundwater Extraction under the Sustainable Groundwater Management Act, if Needed, attached hereto as Exhibit A; and

WHEREAS, the Process to Regulate Groundwater Extraction under the Sustainable Groundwater Management Act, if Needed, describes the approach to respond to worsening basin conditions, including the steps that would be taken prior to implementing SGMA authorities to regulate extraction.

NOW, THEREFORE BE IT RESOLVED that the Board of Directors of the Santa Clara Valley Water District:

1. Hereby adopts the Process to Regulate Groundwater Extraction under the Sustainable Groundwater Management Act, if Needed; and

2. All the recitals in this Resolution are true and correct and the District so finds, determines, and represents.

PASSED AND ADOPTED by the Board of Directors of the Santa Clara Valley Water District by the following vote on February 27, 2018:

AYES: Directors N. Hsueh, T. Estremera, B. Keegan, G, Kremen, L. LeZotte, J. Varela, R. Santos

NOES: Directors None

ABSENT: Directors None

ABSTAIN: Directors None

SANTA CLARA VALLEY WATER DISTRICT

By: Richard P. Santos

RICHARD P. SANTOS
Chair/Board of Directors

ATTEST: MICHELE L. KING, CMC

Michele L. King

Clerk/Board of Directors

EXHIBIT A
COVERSHEET

PROCESS TO REGULATE GROUNDWATER EXTRACTION UNDER THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT, IF NEEDED

No. of Pages:	6
Exhibit Attachment:	Attachment 1: Process to Regulate Groundwater Extraction under the Sustainable Groundwater Management Act, if Needed

PROCESS TO REGULATE GROUNDWATER EXTRACTION UNDER THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT, IF NEEDED

INTRODUCTION

The Santa Clara Valley Water District (District) has sustainably managed the Santa Clara and Llagas Subbasins for many decades under the authority of the District Act. In 2014, the Sustainable Groundwater Management Act (SGMA) was enacted as California's first comprehensive, statewide regulatory program for groundwater. SGMA provides Groundwater Sustainability Agencies (GSAs), like the District, with various authorities to manage groundwater.

SGMA authorities include the ability to regulate pumping and assess different types of groundwater charges. These authorities have been discussed in various meetings of the District Board of Directors (Board) Water Conservation and Demand Management Committee (Committee) in an open forum and with input from interested stakeholders.

The existing, proven groundwater management approach, which includes strong partnerships with large groundwater pumpers, is expected to result in continued, sustainable groundwater management in the future and is the preferred approach to addressing future challenges. This document describes the approach to implementing SGMA authorities to regulate groundwater extraction, should such regulation become needed in the future.

BACKGROUND

SGMA established new requirements for GSAs, including the development of Groundwater Sustainability Plans (GSPs) or prescribed Alternatives. In 2016, the District prepared the 2016 Groundwater Management Plan (GWMP), which was approved by the Board following a public hearing on November 22, 2016. The District submitted the GWMP as an alternative to a GSP to the California Department of Water Resources (DWR) in December 2016. The GWMP acknowledged the new SGMA authorities and committed the District to work collaboratively with groundwater pumpers and other stakeholders to further evaluate the authorities. The Board referred related stakeholder engagement to the Committee.

The Committee, stakeholders, and the Board have indicated interest in the use of a fixed charge as a component of the groundwater production charge, and the District will further explore this concept. Committee items on the potential regulation of pumping and related discussion with stakeholders have led to the development of this process, or implementation framework.

SGMA provides GSAs with various authorities to ensure groundwater management and use do not cause undesirable results, which are defined as one of more of the following per Water Code §10721:

1. Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon.
2. Significant and unreasonable reduction of groundwater storage.
3. Significant and unreasonable seawater intrusion.
4. Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

5. Significant and unreasonable land subsidence that substantially interferes with surface land uses.
6. Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

Per Water Code §10726.4(a), in regulating groundwater extraction, SGMA allows a GSA to:

1. impose spacing requirements on new wells and impose reasonable operating regulations on existing wells to minimize well interference by restricting or suspending well production;
2. control groundwater extractions by regulating, limiting, or suspending extractions, new well construction, well enlargement, or abandoned well reactivation, or by establishing allocations;
3. authorize temporary and permanent transfers of extraction allocations; and
4. establish rules to allow unused extraction allocations to be carried over from one year to another and voluntarily transferred.

However, SGMA acknowledges limitations on the regulation of pumping. Local agencies are not authorized to make a binding determination of the water rights of any person or entity (Water Code §§ 10720.5(b) and 10726.8(b)). Also, any actions to control extractions generally must be consistent with the city or county general plans (Water Code §§ 10726.4, 10726.8(f), and 10726.9).

Research into the use of similar authorities in other jurisdictions indicates that few agencies regulate pumping, and highlights related challenges. Where used, pumping regulation has been in response to significant basin problems like long-term overdraft or salt water intrusion, most commonly through the well permitting process. These agencies have struggled with well owner concerns, enforcement, and legal challenges. Others have decided against regulation due to concerns with water rights and the potential to trigger adjudication, focusing instead on financial incentives or groundwater replenishment.

GUIDING PRINCIPLES

The District's existing groundwater management framework has maintained sustainable groundwater conditions over many decades. This proven framework, including strong collaboration with stakeholders, is the preferred approach to address future challenges. However, SGMA authorities are available as potential tools if the need arises. The process to regulate groundwater extraction, if needed, is based on these guiding District principles:

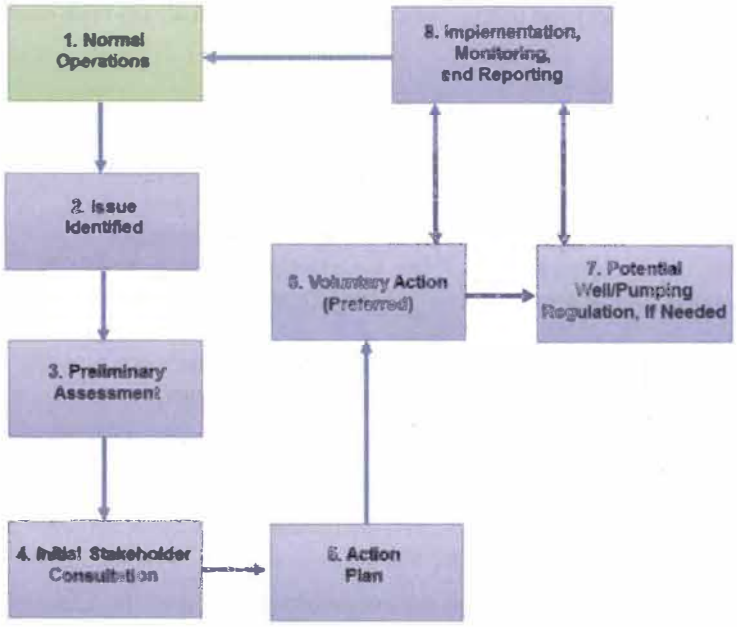
1. The District will sustainably manage local groundwater as part of our mission to provide Silicon Valley safe, clean water for a healthy life, environment, and economy.
2. The District will continue to conduct comprehensive water supply planning and invest in diverse water supplies to ensure reliability and avoid chronic shortages.
3. Through ongoing water supply operations, the District will continue to optimize the use of available water supplies while protecting groundwater storage.
4. Transparency in fulfilling the District mission remains an important driver and the District will continue to encourage input and participation from all interested stakeholders.

5. The District will continue to seek solutions that effectively and efficiently address identified water supply issues as they arise.
6. The District will work with water retailers and other stakeholders to continue to improve our understanding and management of groundwater basins and conditions, including sustainable use.
7. Strong partnerships with water retailers and other large groundwater users have been effective in avoiding undesirable results and are critical to future sustainability.
8. Collaboration with groundwater users and interested stakeholders will continue to be the preferred approach to address observed or projected undesirable results, and District regulation of pumping will only be considered if there is no viable alternative.
9. Given the uncertainty in the timing, location, and severity of potential future undesirable results, the process to regulate groundwater extraction avoids prescriptive triggers and requirements; instead, it clarifies how to respond to worsening conditions. This will maintain maximum flexibility to respond to changing conditions and avoid unnecessary or ineffective actions.

PROCESS TO REGULATE GROUNDWATER EXTRACTION, IF NEEDED

The existing groundwater management framework is expected to support continued, sustainable conditions, and pumping regulation may never be needed. The process described below and summarized in Figure 1 describes the fundamental approach to respond to worsening basin conditions, including the steps that would be taken prior to implementing SGMA authorities to regulate extraction. As mentioned above, the focus is on providing certainty as to the process, while avoiding prescriptive requirements that may not be appropriate. This process allows for moving between the various steps linearly or using feedback loops.

Figure 1. Process to Regulate Groundwater Extraction, if Needed



1. Evaluate groundwater conditions, coordinate with water retailers, and receive stakeholder input
2. Identify new regulatory requirement or observed/projected undesirable result
3. Prepare memo describing issue and potential mitigation (e.g., additional supplies and/or demand reduction)
4. Meet with affected pumpers and/or other stakeholders to discuss issue and preliminary assessment
5. Develop draft action plan with stakeholder input, including desired outcome, roles, actions, schedule, monitoring, and reporting
6. Agree to implement voluntary actions to address issue (preferred)
7. Develop Board ordinance to implement SGMA authorities through Committee and public process
8. Implement voluntary and/or mandatory actions described in action plan and/or ordinance, monitor and report out to Board and stakeholders

Note: Depending on the severity and challenges of the issue identified, the implementation of any step could be elevated to the Committee and/or Board

Step 1: Normal Operations

Comprehensive planning through the District's Urban Water Management Plan and Water Supply Master Plan ensures long-term water supply reliability (including groundwater) in accordance with level of service targets. Development of these plans includes coordination with water retailers and land use agencies, and the District encourages input from interested stakeholders. This regular, proactive planning avoids chronic shortages.

Operations planning helps meet near-term demands, protect groundwater reserves, and ensure adequate carryover supplies. Through this ongoing process, District staff develops operations scenarios based on the availability of imported and local supplies, including their optimal use and distribution. Water supply conditions are discussed with water retailers at least quarterly through Water Retailers Committee and Groundwater Subcommittee meetings, but operational or water supply issues often require more frequent communication and coordination. Current water supply information is also communicated to interested stakeholders through monthly Water Tracker updates and Groundwater Condition Reports, and the availability of groundwater level and other water supply data at www.valleywater.org.

Receiving input on groundwater management issues from interested stakeholders is an important part of normal operations. Accordingly, the District maintains a list of interested parties that includes water retailers, land use agencies, regulatory agencies, adjacent GSAs, non-governmental organizations, community groups, agricultural users, and private individuals, among others. The District notifies these interested parties of upcoming groundwater-related Board and Committee items and relevant information such as completion of the Annual Groundwater Report. The District also provides updates to all well owners on general topics of interest through regular mailings.

The District will continue to explore ways to ensure interested stakeholders are aware of groundwater management activities and opportunities for engagement, including participation in public meetings, Board correspondence, Access Valley Water inquiries, or direct communication with staff. The District evaluates all input and inquiries to determine if additional action is needed to protect groundwater resources.

Step 2: Issue Identified

Through the ongoing assessment of groundwater conditions described above, an issue requiring further action may be identified. This could be a new regulatory requirement, such as the need to limit water supply well construction near an indirect potable reuse project, or an observed or projected undesirable result as defined in Water Code §10721 and listed above. The GWMP identifies numeric outcome measures related to groundwater conditions that indicate the need for action; observed or projected failure to meet one of the outcome measures could lead to an undesirable result. There may also be unanticipated situations that do not trigger failure of an outcome measure, but require action to protect groundwater resources. If an issue requiring further action is identified, the District will inform potentially affected stakeholders and immediately move to the next step in the process.

Step 3: Preliminary Assessment

Once an issue requiring further action has been identified, District staff will use available information to evaluate the issue and summarize the findings in a technical memorandum. The memorandum will describe the nature and extent of impacts, suspected cause(s), potential

effects of taking no action, and potential mitigation options. These options may include District action, such as more focused monitoring, recommended shortage response per the Water Shortage Contingency Plan, efforts to acquire supplemental supplies, or incentives for the use of treated water. Mitigation options could also include the reduction of pumping within the impacted area.

Step 4: Initial Stakeholder Consultation

After completing the prior step, District staff will meet with selected stakeholders within the affected area to discuss groundwater conditions and the preliminary assessment. This initial consultation targets those likely needing to take action to help address the issue. In most cases this is expected to include higher-volume pumpers like water retailers that more strongly influence basin conditions. Depending on the nature of the issue, other affected stakeholders may also be consulted during this stage.

The District will work with stakeholders to evaluate additional data and update the preliminary assessment as necessary. The District and affected stakeholders will identify the schedule to develop an action plan as well as related roles and responsibilities.

It should be noted that this consultation may result in quick consensus on the need to act and what needs to be done. This occurred in 2014 when the District met with staff from the San Jose Water Company and the City of Santa Clara to discuss concerns with groundwater levels approaching subsidence thresholds within their service areas. In that case, a single meeting led to quick agreement on the need to voluntarily adjust pumping. This process is intended to support similar decisive action at the staff level when possible.

Step 5: Action Plan

Based on the timeline and roles identified during the initial stakeholder consultation, District staff and/or affected stakeholders will develop a draft action plan to address the issue. This action plan will identify the desired outcome and clearly define actions needed, roles and responsibilities, implementation schedule, and how the issue will be monitored. The action plan will also explain the mechanism and timing of status reports to the Board and interested stakeholders. If the proposed mitigation involves pumping curtailment, staff recommends that affected pumpers have the first opportunity to propose an action plan to meet the desired outcome.

In the 2014 example mentioned above, District and retailer staff collaborated quickly and effectively to reduce localized pumping and minimize the risk of subsidence. Similarly, it is expected that some issues can be effectively resolved at the staff level, with ongoing reporting to the Board Committee and stakeholders as appropriate. However, effective action plans for more severe, challenging, or widespread issues may need to be elevated to allow for more extensive input. In these cases, it may be appropriate to develop the action plan in consultation with all potentially interested stakeholders through the open forum of the Board Committee.

Step 6: Voluntary Action (Preferred Option)

Staff, affected pumpers, and other interested stakeholders will work to finalize an action plan that is likely to be effective in addressing the identified issue. This is the preferred option, which avoids resorting to the need to potentially regulate pumping under SGMA authorities. If

agreement for voluntary action is reached, all entities responsible for implementing the action plan will need to concur with the action plan prior to implementation.

Step 7: Potential Well/Pumping Regulation, if Needed

The District and affected pumpers may not reach consensus on a voluntary action plan or implementation of a voluntary action plan may not prove effective in addressing the identified issue. In those cases, the District may need to consider implementing any of the authorities provided by SGMA under the following process:

1. Discuss groundwater conditions and the potential need for pumping regulation at the Water Conservation and Demand Management Committee and receive input from the Committee and stakeholders;
2. Implement action recommended by the Committee, which may include, but not be limited to, discussion with the full Board, further District action, or additional attempts to reach consensus on voluntary action;
3. Prepare a draft ordinance to regulate groundwater extraction in accordance with Water Code §10726.4 or otherwise exercise authorities provided by SGMA; and
4. Conduct a public hearing for Board consideration of the proposed ordinance.

Step 8: Implementation, Monitoring, and Reporting

The District, affected pumpers, and other identified stakeholders will implement the voluntary and/or mandatory actions described in the action plan and/or ordinance. District staff will monitor the status of action commitments, groundwater conditions, and performance in meeting the desired outcome. Related reporting to the Committee and/or Board as well as interested stakeholders will be in accordance with the action plan or ordinance. Based on the monitoring results and progress toward meeting the desired outcome, operations may return to normal or the voluntary/mandatory action may need to be modified. Successful execution of this step will require close tracking/monitoring and good communication.

TIME FRAME FOR IMPLEMENTATION OF THE PROCESS

There are no fixed time frames assigned to each step above due to the wide range of possibilities in terms of potential issues and related action needed, including whether it is voluntary or mandated. Staff anticipates that, for more manageable issues, effective voluntary action could be implemented within six months. More severe or widespread issues may take longer to address, even through voluntary action, as they may require consideration by a city council, board, or regulatory agency, or due to implementation lead time.

It is expected that if pumping regulation became necessary, implementation of the process listed under Step 7 would take several months to provide adequate noticing and opportunity for input. This time frame should be considered to correspond to the most extreme and severe conditions, with more time likely needed to fully engage potentially affected pumpers and interested stakeholders on this complex and controversial issue.

The severity of the issue will correspond to the response, with more resources and urgency allocated to more extreme issues. In any case, the District will work to expedite an effective response to minimize the risks to beneficial users or groundwater resources, and will remain committed to prioritizing voluntary collaboration over regulation whenever possible.

Valley Water

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